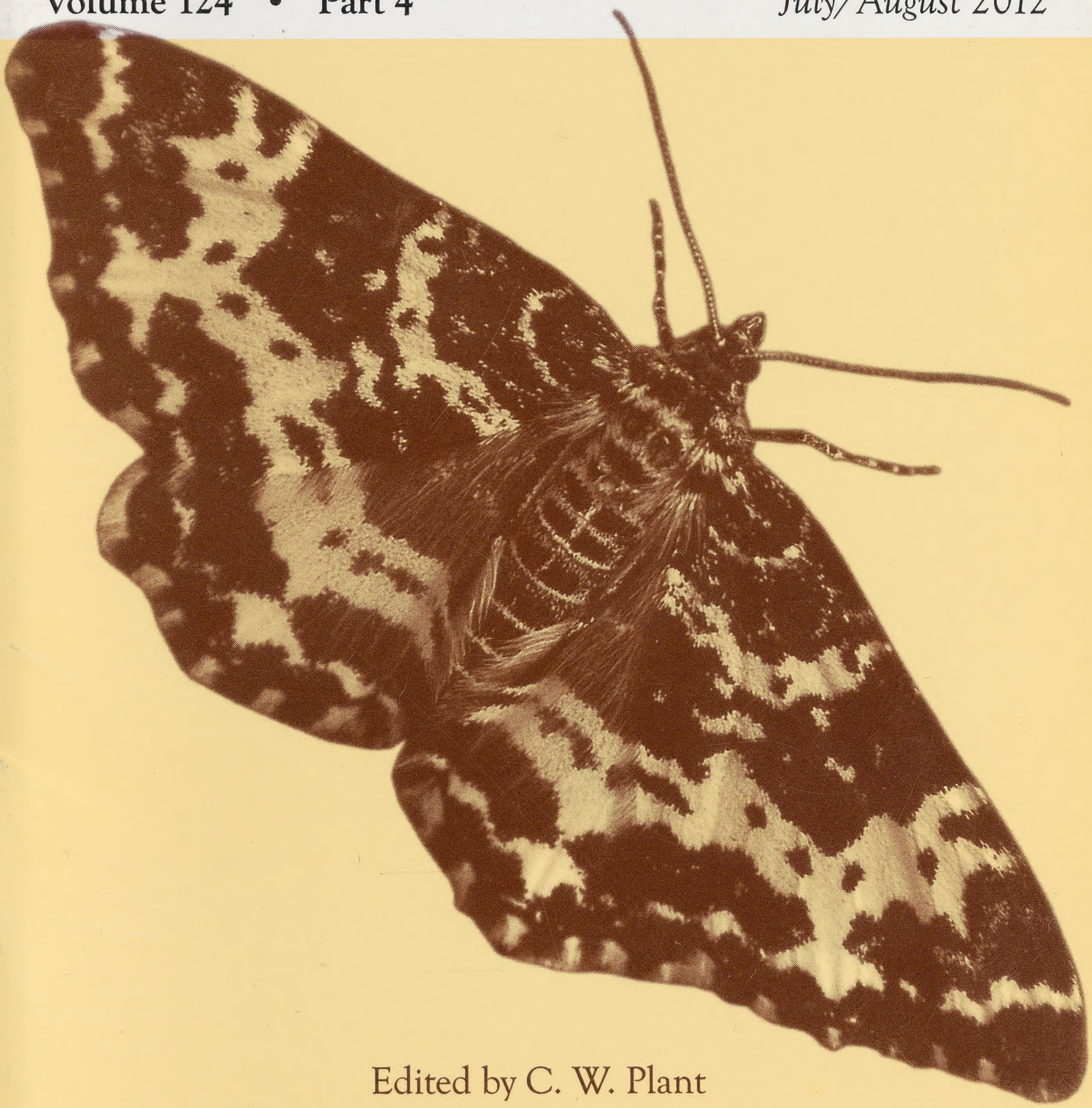
The Entomologist's Record

and Journal of Variation

Volume 124 • Part 4 July/August 2012



Edited by C. W. Plant

www.entrecord.com

A publication of The Amateur Entomologists' Society

THE ENTOMOLOGIST'S RECORD

AND JOURNAL OF VARIATION

World List abbreviation: *Entomologist's Rec. J. Var.*

http://www.entrecord.com

Published by the Amateur Entomologists' Society
UK Registered Charity number 2674302

Annual subscription for 2011 is £25 for individuals or £50 for institutional subscribers

Editor

C.W. PLANT, B.Sc., F.R.E.S., F.B.N.A.
14 West Road, Bishops Stortford, Hertfordshire CM23 3QP.
Telephone: 01279 507697 E-mail: cpauk1@ntlworld.com

Who to contact

Material for publication, books for review, obituaries, advertisements – the Editor
Subscriptions, change of address, etc – contact PO Box 8774, London SW7 5ZG
Late or non-arrivals, back issues – contact PO Box 8774, London SW7 5ZG

Back Issues

Volumes more than ten years old may be read at www.biodiversitylibrary.org/bibliography/8408

Guidelines for Contributors

The Editor welcomes contributions on British Isles Lepidoptera, on non-British Lepidoptera where likely to be of interest to British researchers and on other groups of British Insects for which specialist English language journals do not currently exist. We accept descriptions of new species. Other subject matter may be accepted entirely at the discretion of the Editor, whose decision is final.

Please follow the format in this issue. The Editor will be pleased to assist in any way possible, especially if you are a first-time author. If in doubt – contact me! Ideally material will be compatible with Microsoft Word and will arrive via e-mail, but we will accept typescripts or *neatly* hand-written contributions for shorter Notes.

Notes are reviewed and accepted by the Editor and are especially welcomed. We aim to publish these within two issues of acceptance.

Full papers must include an Abstract and a maximum of ten Key Words and acceptance is subject to external peer-review; full papers may be returned for changes before final acceptance and we aim to publish these within three or four issues of original receipt.

Colour or black and white photographs are welcomed but will only be used if they are deemed relevant by the Editor. All pictures, as well as graphs and other objects created in Excel or other programs must be sent as separate files. This is because files embedded in Word documents cannot be edited.

We now issue Pdf files in place of paper reprints. These are sent automatically to the first named author of Papers. Authors of Notes may request a Pdf of their contribution. Abstracts of Papers are published on our website.

Books for review must be sent to the Editor in the first instance. We do not normally accept unsolicited reviews by third parties.

Data Protection Act, 1998

Subscribers' names, address, AES publications subscribed to and, where provided, e-mail addresses and telephone numbers, are stored on a computer database for the sole purpose of administering the publication and distribution of this journal. The information may be accessed by or sent to elected AES council members for AES business purposes, but will be used solely for the purposes of managing AES membership subscriptions and administering the Society. It will not be divulged to any third party without your permission except where the Society is legally obliged to do so. By subscribing to the *Entomologist's Record and Journal of Variation* you agree to these data storage conditions. If you object to us storing these data please let us know.

Front cover image of *Rheumaptera hastata hastata* (L.) from photograph © by John Knowler

Sean Clancy
Morten Top-Jensen & Michael Fibiger

Moths of Great Britain and Ireland

A field guide to all the macromoths

This tome has the novel approach (for this country) of providing photographs of each species in natural resting posture, along with the more traditional presentation of wings spread (which helps to show hindwing characters), whilst retaining an accessible and compact format and incorporating recent advances in knowledge. This richly illustrated publication can only further stimulate interest in this fascinating, rewarding and accessible group of insects.

Mark Parsons
Head of Moth Conservation,
Butterfly Conservation, April 2012

219 *Perizoma albulata*
Grass Rivulet

A whitish species with many pale brown cross-lines which vary in their intensity but are generally paler and more weakly defined than any of its congeners. Flies as a single brood from mid-May to early July (about a month later than this in upland localities), the moths often being active from mid-afternoon to dusk, as well as after dark. An adaptable species inhabiting a range of more open habitats as diverse as sand dunes, wet fenland, chalk downland and mountain passes. Overwinters as a pupa; the larval foodplant is Yellow Rattle *Rhinanthus minor*. Locally widespread throughout Britain, sometimes found in large numbers where conditions allow. (MT)

220 *Perizoma flavofasciata*
Sandy Carpet

A larger, more strongly marked species than *albulata* with a whitish forewing traversed with sandy-brown cross-lines forming basal, median and terminal bands of this colour. Overwinters as a pupa. The adult stage is on the wing in June and July, inhabiting open woodland, hedgerows, roadside verges and field margins where the larval foodplant Red Campion *Silene dioica* grows. Found throughout Britain, although more locally in Scotland and Ireland. (MT)

This field guide contains all the 874 species of macromoth to have occurred naturally in Britain and Ireland. They are listed in a new systematic order and classified using the most recent hierachy and nomenclature that have now been widely accepted and adopted throughout mainland Europe. Several new species are listed as British either due to recent taxonomic changes, studies of internal structures, or analysis of historic records.

All species are shown in their natural resting position using 1200 photographs, thus making it possible to make an accurate determination in the field to species level of a vast majority of the British macromoths. A selection of photographs of distinctive larvae are also included. Furthermore all listed species have been shown as mounted specimens in their natural size on 60 colour plates in the back of the book, in order to allow direct size and structural comparison between species, and show salient features that are not visible in the natural resting posture.

The species texts describe the diagnostic external characters, the possibilities for confusion, current flight times, larval foodplants, life-cycle strategy, up-to-date distribution and frequency summaries, and individual record details of the scarcer immigrant species.

A new and user-friendly field guide that brings the identification and classification of all Britain's macromoths into the 21st Century and offers the moth recorder a unique combination of both beautiful and functional images of each species alongside contemporary, detailed species accounts.

The book is 640 pages. Size 21.5 x 13 cm. It is equipped with a clear, protective plastic cover for outdoor use.

Price is £54.

To purchase and for further information please see the publisher's website:

www.mothsofbritain.co.uk
www.bugbook.dk

529 *P. moneta*, Golden Plusia. **530** *A. gamma*, Silver Y. **531** *A. pulchrina*, Beautiful Golden Y. **532** *A. jota*, Plain Golden Y. **533** *A. bractea*, Gold Spangle. **534** *M. biloba*, Stephens' Gem. **535** *C. circumflexa*, Essex Y. **536** *S. interrogationis*, Scarce Silver Y. **537** *P. festucae*, Gold Spot. **538** *P. putnami*, Lempke's Gold Spot. **539** *D. pygarga*, Marbled White Spot. **540** *D. deceptoria*, Pretty Marbled. **541** *D. uncula*, Silver Hook. **542** *D. bankiana*, Silver Barred. **543** *A. lucida*, Pale Shoulder. **544** *A. trabealis*, Spotted Sulphur. **545** *A. leucomelas*, Sorcerer. **546** *C. coryli*, Nut-tree Tussock. **547** *D. caeruleocephala*, Figure of Eight. **548** *M. alpium*, Scarce Merveille du Jour. **549** *S. albovenosa*, Reed Dagger. **550** *A. alni*, Alder Moth. **551** *A. tridens*, Dark Dagger. **552** *A. psi*, Grey Dagger. **553** *A. strigosa*, Marsh Dagger.

555

TEMPERATURE DETERMINES THE PRESENCE OF *MICROPTERIX CALTHELLA* L. (LEP.: MICROPTERIGIDAE) IN FLOWER-HEADS OF CREEPING BUTTERCUP *RANUNCULUS REPENS*

ADRIAN SPALDING

Tremayne Farm Cottage, Praze-an-beeble, Praze, Camborne, Cornwall TR14 9PH.

Abstract

The day-flying moth *Micropteryx calthella* L. can be highly visible on the flowers of Creeping Buttercup *Ranunculus repens* where they feed on pollen. It is suggested here that temperature is one of the factors influencing presence in flowerheads. There was a significant difference in temperatures recorded in flowerheads with moths and without moths; the numbers of moths in each flowerhead increases with temperature in the range 10.3-16.7°C. Most moths were found in shade (e.g., on north-facing roadside verges); temperatures in full sun may rise as high as 22.2°C, which appears to be too hot for *Micropteryx calthella*. Low daytime temperatures in cloudy weather may facilitate movement, feeding, mating and dispersal.

Keywords: *Micropterix calthella*, *Ranunculus repens*, temperature, flowerhead

Introduction

Micropteryx calthella is a tiny day-flying moth (wingspan 7-10 mm) that is abundant in suitable habitat throughout Britain in early summer (Heath, 1976). The adults possess fully functional mandibles which they use to grind pollen from a variety of plants (Heath *op. cit.*). The species name reflects its association with Marsh Marigold *Caltha palustris* (*vide* Emmet, 1991), but in Britain these moths are highly visible on the flowers of Creeping Buttercup *Ranunculus repens* (e.g., Spalding, 1993). They also aggregate in high numbers on Dog's Mercury *Mercuralis perennis* and several sedge species (Cyperaceae) and it has been shown that their emergence synchronises with pollen production (Erenler & Gillman, 2010). The larvae live in moist leaf litter, where they consume detritus and possibly fungal hyphae. They live in colonies (sometimes very small), often on road verges and along woodland tracks. *M. calthella* appears to be slow to colonise potentially suitable habitats due to low migratory ability (Kozlov, 2006) and may therefore be declining in some areas.

Creeping Buttercup *Ranunculus repens* is a widespread and common perennial plant found throughout lowland Britain in disturbed habitats on damp or wet nutrient-rich soils, including damp grasslands, woodland rides, ditch sides, farm gateways, gardens, waste ground and roadside verges. It has a stable distribution (Preston, Pearman & Dines, 2002).

How does *Micropteryx calthella* choose on which flowerheads to feed? The theory presented here is that the adult moths choose the flowerheads with the most suitable temperature regime. Temperature is one of the key factors affecting the distribution and abundance of Lepidoptera (e.g., Turner, Gatehouse & Corey, 1987; Roy *et al*, 2001), especially for diurnal species which generally heat up in

the sun, such as most butterflies (e.g., Pollard, 1988; Thomas & Lewington, 1991; Warren, 1992), but also some diurnal moths such as the Zygaenidae (Tremewan & Naumann, 1998). Optimum temperatures are known for a range of butterflies, for example Grayling (Dreisig, 1995), Wall (Dennis, 1993), Large Blue (Thomas, 1995), High Brown Fritillary (Warren, 1995) and moths (e.g., for flying species (Taylor, 1963)). Nocturnal moths, being endothermic, generally warm up by shivering, gaining much of their heat from muscular energy (Clench, 1966) although some residual heat gained during hot afternoons may be beneficial for later activity (Spalding & Young, 2011). This research aims to discover whether the distribution of *M. calthella* on the flowers of *Ranunculus repens* depends mainly on temperature; in particular whether *M. calthella* shows a preference for the hottest flowerheads.

Methods

A number of small colonies of *Micropteryx calthella* were surveyed at different times of day in order to record the numbers present on each flowerhead, whether the flowerhead was wide open or partly closed (cup-shaped), whether the flowerhead was in shade or sun and the temperature of the petal upper surface. Results are presented in Table 1. All surveys were carried out when both *M. calthella* and flowering *R. repens* were present and in sunshine, except surveys at Besore on 3 June 2010 (cloudy but dry) and 28 May 2011 (cloudy with light rain). Sampling was of flowerheads chosen at random or, in the case of small colonies, of all flowerheads present.

Additional surveys were carried out on 10 roadside colonies found at random whilst driving round narrow lanes in central and west Cornwall to see whether the *M. calthella* colonies were shaded by hedgerow trees from the daily sunshine. Surveys stopped when the *M. calthella* season was over, although *R. repens* was still flowering.

The colony at Besore was by the edge of a road running east-west, with flowering *R. repens* on both verges. The verges were a mix of ruderal plants backed by trees and scrub including Sessile Oak *Quercus petraea* and Blackthorn *Prunus spinosa*. The southern verge was almost continually in shade at this time of year, whilst the northern verge was in sun during at least part of the day.

The colony at the Dizzard was along a narrow 2m wide track running north-south through low Oak woodland. *R. repens* grew on both sides of this track; at the time of the survey (16.20 pm) parts of both verges were in sun, parts in shade.

The colony at Halbullock was in a grassy meadow, in full sun for most of the day; *R. repens* grew on the lower wetter areas amongst wetland plants such as Soft Rush *Juncus effusus* and Meadowsweet *Filipendula ulmaria* and also on the higher drier slopes. A 110m transect was surveyed upwards from the lowest part up the hill, recording the temperature and presence of *M. calthella* on *R. repens* flowerheads at one metre intervals.

Temperatures on the surface of petals were taken with an ETI-8820 infrared hand-held non-contact thermometer with a range of –50 to +53°C, with a laser alignment. The resolution is given as 0.1°C, accuracy + or - 1.5% of each reading or + or - 2°C, whichever is the greater.

The t-test for comparing variables where a normal distribution occurred was calculated using Excel. Where a correlation was possible, statistical significance was tested in Excel to ascertain the strength of the relationship between variables.

Site	**Survey dates**	**Shade or sun**	**No of *M calthella***	**Flowerhead form (cup-shaped or open)**	**Petal Surface temperature**
Besore roadside verge, Truro	30.5.10; 31.5.10; 2.6.10; 3.6.10; 10.6.10; 11.6.10; 27.5.11; 21.5.11; 28.5.11	Recorded	Recorded	Recorded	Recorded
The Dizzard wood, near Crackington Haven	4.6.10	Recorded	Recorded	Not recorded	Recorded
Halbullock meadow, Truro	18.5.11	Recorded	Recorded	Recorded	Recorded

Table 1. Survey methodology at three sites in Cornwall.

Results

1. Moth activity

24 moths were recorded pairing. Other moths were recorded feeding on pollen or walking around the flowerheads. Few moths were seen flying.

2. Temperatures in different categories of flowerhead (open or cup-shaped)

There was no significant difference between temperatures in the two categories – wide open and cup-shaped ($t = 0.52$; $p > 0.1$; $n = 43$). The temperatures ranged from 9.4-14.4°C (mean 11.8°C) in the cup-shaped flowers to 8.6-16.8°C (mean 11.6°C) in the open flowers. There was no significant difference in the numbers of *M. calthella* in the cup-shaped and open flowers ($t = 1.09$; $p > 0.1$; $n = 8$).

3. The presence of moths and flowerhead temperatures

There was a significant difference in temperatures recorded in flowerheads with moths and those without moths ($t = 3.29$; $p < 0.01$; $n = 140$). The mean temperature with moths was 13.4°C (range 10.3-16.7°C) and without moths was 12.7°C (range 8.6-22.2°C) (Fig 1). Only 11% of the temperature readings where moths occurred were over 15°C; the modal temperature was 12°C. The highest temperatures were recorded in full sunshine, where no moths were found. The moths were clearly found in the mid-temperature ranges (Fig. 1).

In early morning, at 09.15am on 3.vi.2010, with no sun on the colony, there was a significant difference between the temperatures recorded in each flowerhead with moths (mean = 13.44) and without moths used (mean = 12.28) ($t = 7.43$; $p < 0.01$; $n = 18$). The moths preferred slightly warmer flowerheads.

4. Numbers of moths and flowerhead temperatures

There was a statistically significant weak correlation between the number of moths and the temperature recorded in each flowerhead ($r = 0.187$; $p < 0.05$; $n = 195$). The mean temperature recorded was 13.1°C (range 10-16.7°C); the mean number of moths per flowerhead was 2.13. 107 flowerheads had a single moth present. The highest number of moths recorded in a single flowerhead was 13. There are generally more moths in the warmer flowerheads, up to about 15°C (Fig. 2).

5. The association of moths and sun

Moths were rarely found in full sun. Overall 165 flowerheads in shade (83.6%) supported moths (mean temperature 12.8°C), compared to only 27 flowerheads in sun (16.4%) (mean temperature 14.4°C). There was a significant difference in temperatures in flowerheads with moths in sun and shade ($t = 3.28$; $p < 0.01$; $n = 27$).

At Hallbullock, on a 110m transect with 110 flowerheads recorded in full sun up a hill, 25 flowerheads were recorded with *M. calthella*. There was a significant difference in temperatures in flowerheads with moths (mean = 13.5°C) and without moths (mean = 11.7°C) ($t = 5.05$; $p < 0.01$; $n = 25$); the moths appeared to prefer those flowerheads with slightly higher temperatures. Most of the *M. calthella* clustered at the bottom of the slope (Fig. 3) amongst marshy vegetation where temperatures were higher perhaps because it was more sheltered. Differences in humidity were not investigated.

All but one of the roadside colonies surveyed was on the south or west side of roads (i.e. facing north or east) and protected by hedges from the midday sun; only at Rosenannon was the colony on the east side of a road running north-south and in full sun (Table 2).

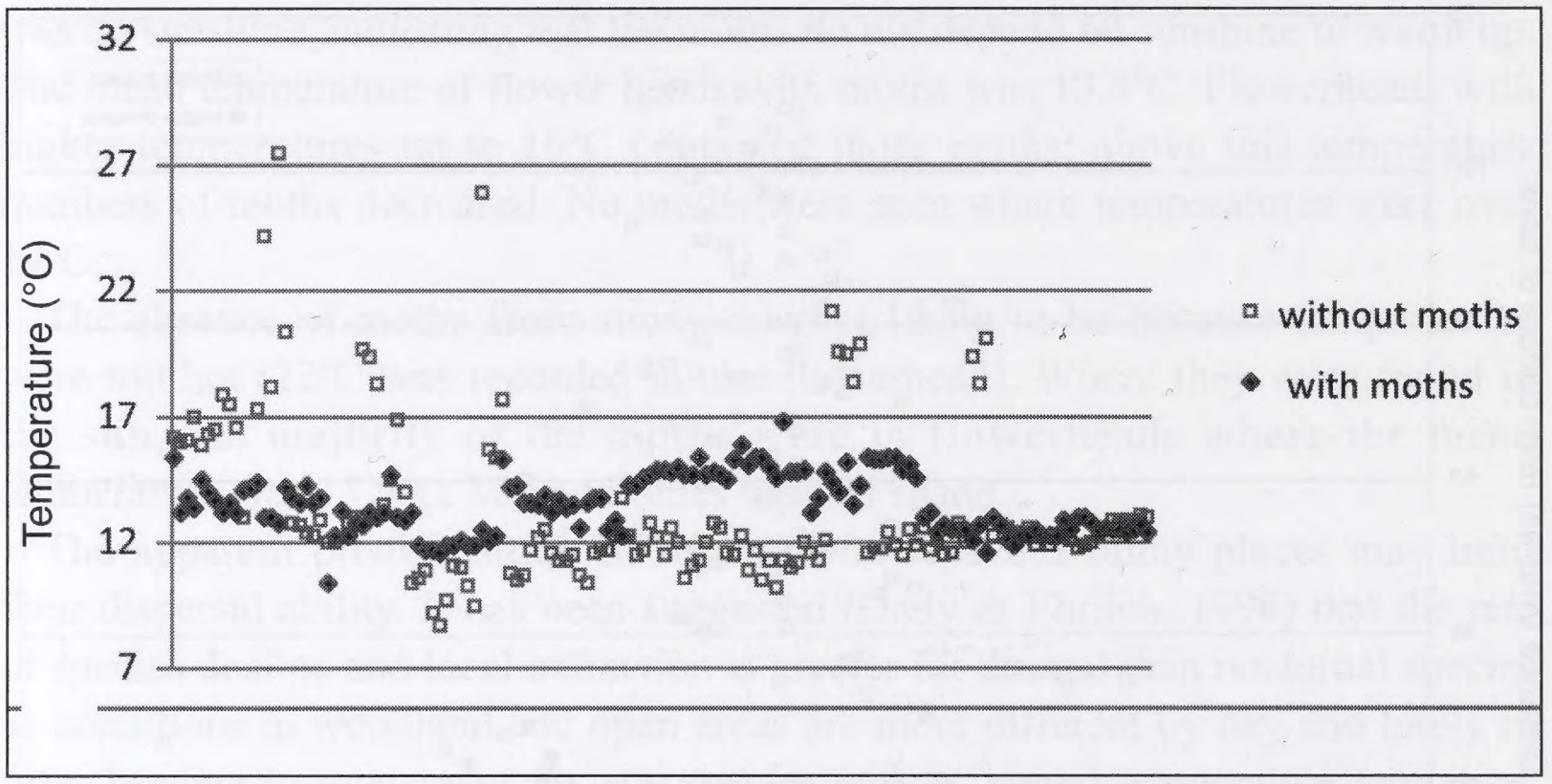


Fig. 1. Presence or absence of adult moths correlated with petal surface temperatures.

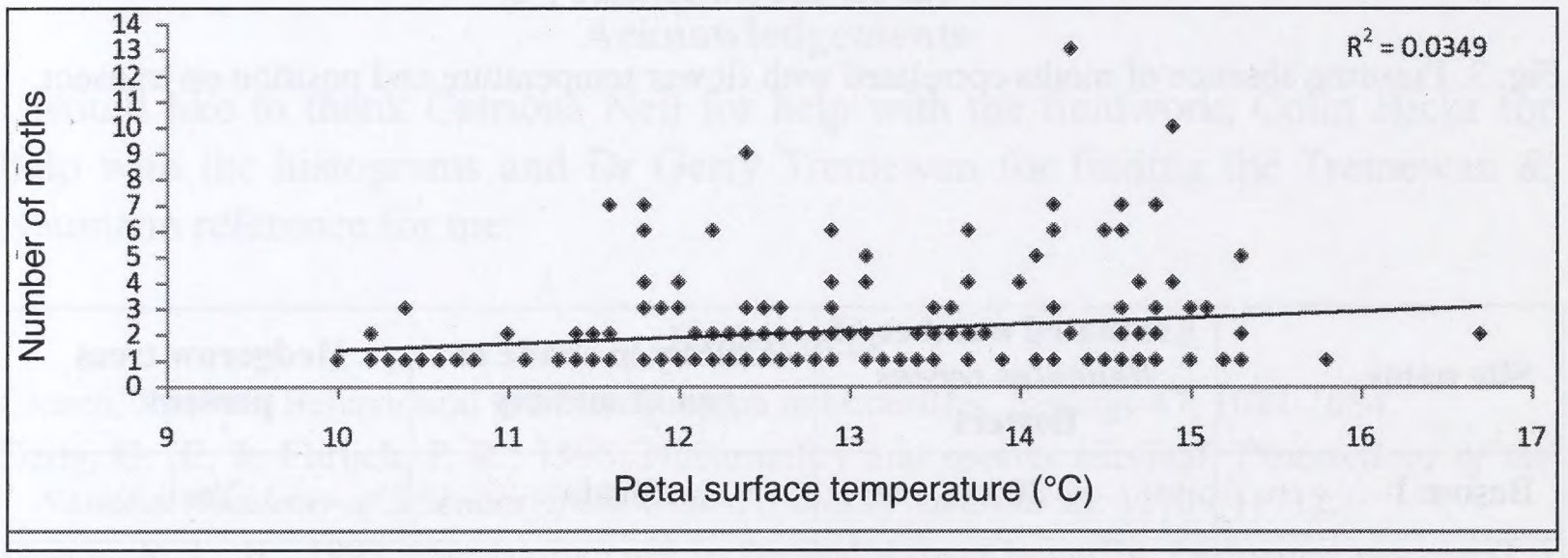


Fig. 2. Numbers of moths at differing petal surface temperatures.

Discussion

It was perhaps surprising that temperature readings on the two categories of flowerheads (wide open and cup-shaped) show no significant difference as the cup-shaped flowers, with their centres sheltered from the surrounding habitats, might be expected to be warmer. There was also no significant difference in the numbers of *M. calthella* between the two categories. It is possible that the amount of pollen available was different between the open and cup-shaped flowers and the number of moths present may be partly influenced by a combination of pollen availability and temperature regime. Further investigation of pollen loading and *M. calthella* within *R. repens* is required.

Moths appear to prefer warmer temperatures up to 16-17°C, avoiding cooler flowerheads (below 10°C). This was apparent in the early morning, when there

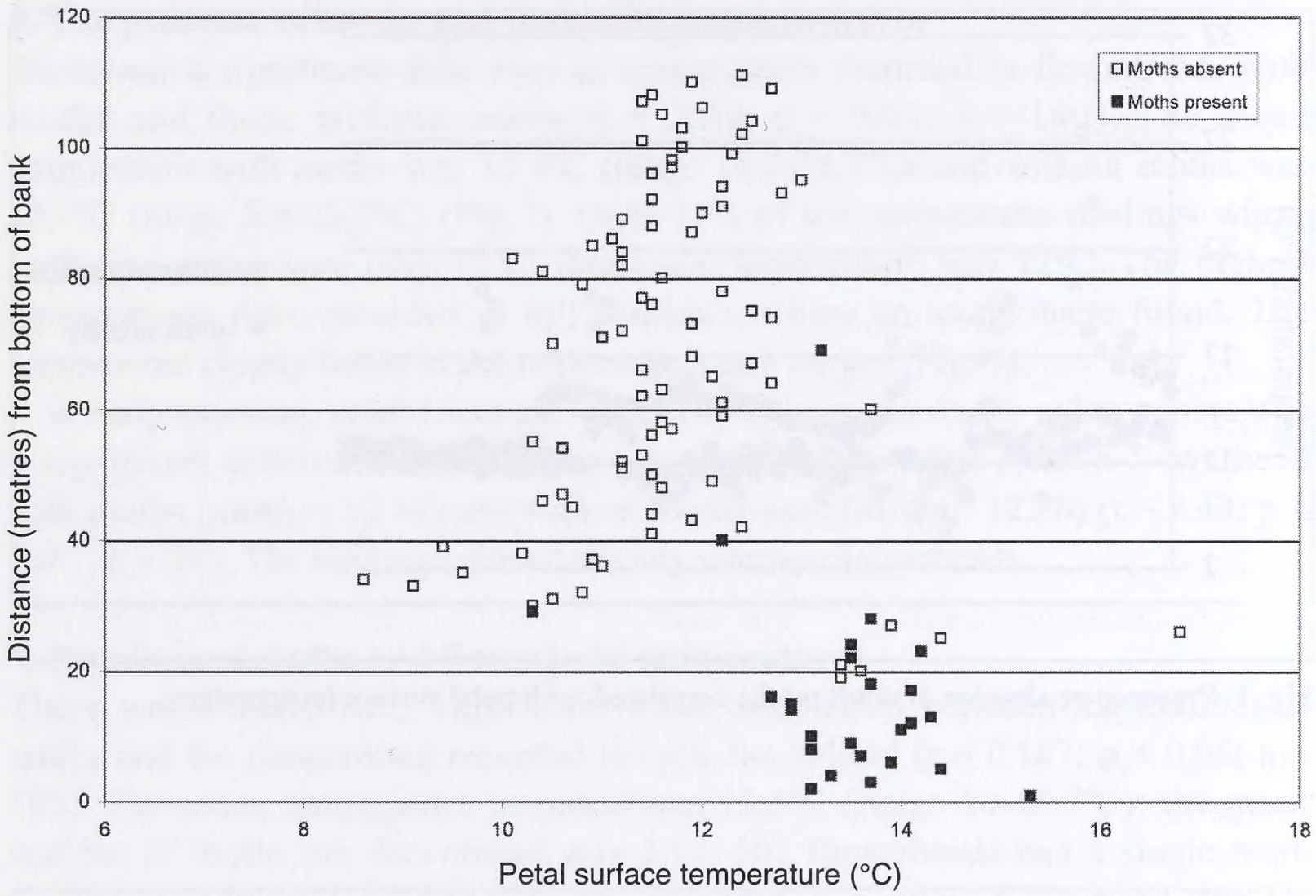


Fig. 3. Presume/absence of moths correlated with flower temperature and position on transect.

Site name	**Estimated number of *Ranculus repens* flowers**	**Colony in shade or sun at midday**	**Hedgerow trees present**
Besore 1	300	Shade	Yes
Besore 2	125	Shade	Yes
Besore 3	50	Shade	Yes
Besore 4	150	Shade	Yes
Besore 5	55	Shade	Yes
Besore 6	100	Shade	Yes
Halbullock	120	Shade	Yes
Lostwithiel	50	Shade	Yes
Rosenannon	70	Sun	No
Farms Common	40	Shade	Yes

Table 2. *Micropterix calthella* roadside verge sites in Cornwall.

was no sunshine, indicating that the moths do not depend on sunshine to warm up. The mean temperature of flower heads with moths was 13.4°C. Flowerheads with higher temperatures up to 16°C contained more moths; above this temperature numbers of moths decreased. No moths were seen where temperatures were over 17°C.

The absence of moths from sunny areas is likely to be because temperatures were too hot (22°C was recorded in one flowerhead). Where they were found in the sun, the majority of the moths were in flowerheads where the mean temperature was 13.5°C. Most colonies were in shade.

The apparent predisposition of *M. calthella* to avoid sunny places may limit their dispersal ability. It has been suggested (Daily & Ehrlich, 1996) that the rate of species decline and local extinction is greater for diurnal than nocturnal species as conditions in woodland and open areas are more different by day and likely to form barriers to movement for any species with a limited temperature tolerance. Hot sunny conditions where the temperature is over 17°C would prevent *M. calthella* flying across sunny patches. Lower daytime temperatures in cloudy weather may facilitate movement, feeding, mating and dispersal.

Acknowledgements

I would like to thank Catriona Neil for help with the fieldwork, Colin Hicks for help with the histograms and Dr Gerry Tremewan for finding the Tremewan & Naumann reference for me.

References

Clench, J., 1966. Behavioural thermoregulation in butterflies. *Ecology* **47**: 1021-1034.

Daily, G. ,C. & Ehrlich, P. R., 1996. Nocturnality and species survival. *Proceedings of the National Academy of Sciences of the United States of America* **93**: 11709-11712.

Dennis, R. L. H., 1993. Egg-laying cues in the wall-brown butterfly, *Lasiomata megera* (L.) (Lepidoptera: Satyridae). *Entomologist's Gazette* **34**: 89-95.

Dreisig, H., 1995. Thermoregulation and flight activity in territorial male graylings, *Hipparche semele* (Satyridae), and large skippers, *Ochlodes venata* (Hesperiidae). *Oecologia* **101**: 169-176.

Emmet, A.M., 1991. *The Scientific Names of the British Lepidoptera. Their History and Meaning*. Harley Books.

Erenler, H. E. & Gillman, M. P., 2010. Synchronisation of adult activity of the archaic moth, *Micropterix calthella* L. (Lepidoptera, Micropterigidae), with anthesis of sedges (*Carex* spp., Cyperaceae) in an ancient wood. *Arthropod-Plant Interactions*. **4**: 117-128.

Heath, J. (Ed.) 1976. *The Moths and Butterflies of Great Britain and Ireland*. Volume 1. Blackwell & Curwen Press.

Kozlov, M. V., 2006. Changes in distribution of an archaic moth, *Micropterix calthella*, in St Petersburg, Russia, between 1989 and 2005. *Journal of Biogeography* **34(2)**: 231-236.

Pollard, E., 1988. Temperature, rainfall and butterfly numbers. *Journal of Applied Ecology* **25**: 819-828.

Preston, C. E., Pearman, D. A. & Dines, T. D., (Eds). 2002. *New Atlas of the British & Irish Flora*. Oxford University Press.

Roy, D. B., Rothery, P., Moss, D., Pollard, E. & Thomas, J. A., 2001. Butterfly numbers and weather: predicting historical trends in abundance and the future effects of climate change. *Journal of Animal Ecology* **70**: 201-217.

Spalding, A., 1993. A note on *Micropterix calthella* L. (Lep.: Micropterigidae). *Entomologist's Record and Journal of Variation*. **105**: 238.

Spalding, A. & Young M. R., 2011. The effect of weather on the activity of nocturnal moths – the case of *Luperina nickerlii* (Lepidoptera: Noctuidae) under field conditions. *Entomologist's Gazette* **62**: 267-276.

Taylor, L. R., 1963. Analysis of the effect of temperature on insects in flight. *Journal of Animal Ecology* **32**: 99-112.

Thomas, J. A., 1995. *The ecology and conservation of* Maculinea arion *and other European species of large blue butterfly*. In Pullin, A.S. (ed). *Ecology and Conservation of Butterflies*. Chapman & Hall.

Thomas, J. A. & Lewington, R., 1991. *The Butterflies of Britain & Ireland*. Dorling Kindersley.

Tremewan, W. G. & Naumann, C. M., 1998. Notes on the biology and ecology of *Zygaena* (*Mesembrynus*) *alpherakyi* Sheljuzhko, 1936 (Lepidoptera: Zygaenidae). *Stapfia* **55**: 107-112.

Turner, J. R. G., Gatehouse, C. M. & Corey, C. A., 1987. Does solar energy control organic diversity? Butterflies, moths and the British climate. *Oikos* **48**: 195-205.

Warren, M. S., 1992. Butterfly populations. *In* Dennis, R. L. H. (Ed), *The Ecology of Butterflies in Britain.* Oxford.

—, 1995. *Managing local microclimates for the high brown fritillary,* Argynnis adippe. In. Pullin A.S. (ed). *Ecology and Conservation of Butterflies*. Chapman & Hall.

Batrachedra praeangusta (Haw.) (Lep.: Batrachedridae) new to the Isle of Wight

On 22 July 2011, I ran a moth-trap for an family wildlife evening, organised by Hampshire and Isle of Wight Wildlife Trust, at Bouldnor Copse on the Isle of Wight (O.S. grid reference SZ 379901; VC 10). Within a fairly short list of moths for the evening was *Batrachedra praeangusta*, caught in flight at the edge of mixed woodland just after dusk. I was rather surprised to find that, although this moth is common throughout most of Britain and Ireland, no record was shown for vice-county 10 in Emmet and Langmaid ([Eds.] 2002. *The Moths and Butterflies of Great Britain and Ireland* **4**(1). Harley Books), nor is there any previous record on the Hampshire and Isle of Wight micro-moth database (Mike Wall *pers. comm.*).

The moth was caught near one of its potential foodplants, a broad-leaved willow (*Salix* sp.), and I can see no reason why it should not be breeding on the island.

Thanks to Mike Wall and Dr J. R. Langmaid for checking the Isle of Wight records.— MARTIN C. HARVEY, Evermore, Bridge Street, Great Kimble, Aylesbury, HP17 9TN (E-mail: kitenetter@googlemail.com)

The Isle of Wight Wave *Idaea humiliata* (Hufn.) (Lep.: Geometridae) in Huntingdonshire: A correction

Earlier this year, in this journal (*Antea*: 40-41), we announced the discovery of *Idaea humiliata* at Old Weston, Huntingdonshire. The moth was found in a moth trap operated by KR in his garden on 4 July 2011. As the moth looked different from other *Idaea* species found locally it was retained for further examination. On 23 October 2011 the moth was dissected and identified as *I. humiliata*. The aedeagus was seen to have three cornuti and after referring to Hausmann (2004. Sterrhinae. – *In* A. Hausmann (ed.): *The Geometrid Moths of Europe* **2**), it was thought that this was most likely the correct identification. Photographs of the dissection were e-mailed to several eminent lepidopterists who thought that our identification was correct.

Martin Honey of the British Museum (Natural History) asked if a leg could be sent for DNA examination. This we did. The leg was forwarded to Axel Hausmann (München, Germany), who submitted it for analysis on our behalf, as specimen number BC ZSM Lep 66719. Dr Hausmann subsequently reported that the results indicate that the sequence of the CO1 gene is a 100% match for *Idaea fuscovenosa*. He commented that *Idaea humiliata* has a quite different COI gene at a genetic distance of about 5%. Consequently, in spite of the characters of the aedeagus, the British moth must be considered as belonging to *Idaea fuscovenosa*.

The COI gene is inherited to 100% from the mother, thus a possible hybridization one or two generations ago is not completely excluded. — KEVIN ROYLES, Brook Farm House, Main Street, Old Weston, Huntingdon PE28 5LL (E-mail: janeroyles@btinternet.com) and BARRY DICKERSON, 27 Andrew Road, Eynesbury, St Neots PE19 2QE (E-mail: barry@eynesbury27.freeserve.co.uk).

***Hypenodes humidalis* Doubleday (Lep.: Noctuidae) new to the Bulgarian fauna**

On 16 September 2010, we caught a single male *Hypenodes humidalis* (= *turfosalis* Wocke) at 125-watt mv light in an area of freshwater marsh within a damp woodland behind the sand dunes of the Kamchyiski pyasatzi protected area between Dolni Chiflik and Shkorpilovtzi villages, on the Black Sea coast of Bulgaria, near the mouth of the Kamchyia River at 42°59'31"N; 27°53'25E" (approximate altitude 5 metres). The identification was confirmed by examination of the genitalia and the specimen is retained in CWP's collection. This is the first accurate report of this species from Bulgaria; the report in Nowacki & Fibiger (1996. In Karsholt, O. & Razowski, J. (Eds.) *The Lepidoptera of Europe: A distributional checklist*) is an error (see Beshkov, S. V., 2000. An annotated systematic and synonymic checklist of the Noctuidae of Bulgaria. *Neue Entomologische Nachrichten* **49**: 1-300).

The European Hypenodinae were recently reviewed by Fibiger, Ronkay, Yela & Zilli (2010. *Noctuidae Europaeae* **12**). This work, which also describes four new species in the genus *Hypenodes*, shows *H. humidalis* affecting much of northern Europe eastwards of France, but apparently absent from southern areas including

the Balkan Peninsula. Beshkov (*op. cit.*) records *H. anatolica* Schwingenschuss from two localities in the south-west of the country; more recently *H. anatolica* was found by SB in the Eastern Rhodopi Mountains near the town of Krumovgrad. Beshkov (*op. cit.*) also cites Ganev (1987. *SHILAP Revta lepid.* **15**(58): 99-104), who records *H. orientalis* Stdgr. from a single locality on the Black Sea coast. However, Fibiger *et al* (*op. cit*) indicate that *H. orientalis* is confined to a narrow zone from the Levant through the southern part of Turkey and Cyprus to the southern Caucasus mountain range and so the identity of the Ganev specimen is called into question. Ganev's specimen is not currently available to us, but it was seen some years ago by SB, who recalls that it was a dark, nearly black specimen; its identity should be regarded as requiring confirmation.

It is interesting to speculate why this species has not been recorded in Bulgaria before now. Members of the subfamily Hypenodinae are small, as noctuids go, around the size of the average tortricid and as a consequence may in general be overlooked by lepidopterists whose interests lie only with the 'macros'. However, this is most unlikely to be the case in Bulgaria, since SB is an extremely thorough noctuid specialist whilst BZ examines the 'micros' and in particular the Tortricidae. Both SB and BZ have worked the Kamchyiski pyasatzi protected area on many previous occasions and the site itself is quite well-recorded for Lepidoptera. However, whilst mv bulbs have been used on occasion, this has tended to be in open situations on the adjacent sand dunes, where the assembled entomologists are able to gather around a sheet; in the confined space of the marsh, where the ground is wet, actinic tubes have normally been used. The single *humidalis* was attracted by a 125-watt mercury vapour bulb attached to a Robinson-pattern trap that was abandoned at dusk and collected at dawn. It is entirely possible that *humidalis* (a) does not move from the confines of its habitat and (b) is unaffected by the light from actinic tubes? Personal experience of CWP in Britain is that some moth species show considerable reluctance to enter traps that are not placed almost on top of them! For example, in Hertfordshire, England, both sexes of *Hydraecia petasitis* Doubleday readily enter 125-watt mv traps placed in amongst dense growth of the foodplant (with the trap literally up against the stems of the plants, so that rather little light escapes to the surrounding area), but identical traps positioned on the grassy footpath 2 metres away are totally ineffective! Similar experience has been recorded by CWP with *Archanara neurica* (Hb.) on the Suffolk coast of England. Moths were caught in traps set by entering the reed bed cautiously, by parting the vegetation rather than trampling it and trying not to leave any visible signs where the reed bed was entered before placing the trap in a space that was no wider than the trap itself. Identical traps set on the raised sea wall between two and three metres away from the edge of the reed bed caught no *neurica*. — COLIN W. PLANT (cpauk1@ntlworld.com), STOYAN BESHKOV (stoyan.beshkov@gmail.com), TONY PICKLES (ajpickles1@ aol.com) & BOYAN ZLATKOV (bzlatkov@gmail.com). Corresponding address: 14 West Road, Bishops Stortford, Hertfordshire CM23 3QP, UK.

Coleophora frischella (L.) (Lep.: Coleophoridae) and other interesting new moth records for Northumberland

Recently, Tim Sexton passed to me a specimen of a *Coleophora* which he caught on 5 June 2012 at Howick Hall Gardens (VC 68, North Northumberland, O.S. grid reference NU 248175). I narrowed it down to either *C. alcyonipennella* or *C. frischella*, but knowing the only way to separate this species pair is by genitalia determination I sent the moth to Jon Clifton in Norfolk. Jon kindly dissected it and positively identified it as a female *C. frischella*. This provides the first authenticated record of this species for Northumberland.

Distribution of this species is likely to be poorly-known because of confusion with *C. alcyonipennella* (L.). Goodey & Plant (2006. *Ent. Rec.* **121**: 134-135) summarised the problems of identification mentioning, in particular, the transposition of the genitalia figures in *Moths and Butterflies of Great Britain & Ireland* (Harley Books). In adding this species to the list for Hertfordshire, Goodey and Plant also published an up to date map of records in Britain and Ireland showing that the true *frischella* was known positively in modern times only from South Somerset (VC 5), North Somerset (VC 6), Oxfordshire (VC 23), Herefordshire (VC 36), Worcestershire VC 37), Warwickshire (VC 38) and North Lincolnshire (VC 54) with an old record from West Kent (VC 16). Since that date it has also been found in Dorset (9), Oxfordshire (VC 23), Bedfordshire (30), Breconshire (42), Radnorshire (43), South Lancashire (VC 59) and Mid-west Yorkshire (VC 64) and in Ireland in Clare (H 9) and West Galway (H 16).

The Lincolnshire and Yorkshire records are significantly north of the remainder; the present one from North Northumberland represents an even greater northwards leap. It seems possible that careful examination of the genitalia of specimens resting in collections under the label of *alcyonipennella*, using genitalia drawings other than those in *MBGBI*, might pay dividends.

Previous undetermined Northumberland records which have been relegated to Coleophora alcyonipennella/frischella are as follows: Berwick, 1888, Bolam, G., *H.B.N.C.* **27**, pt 2, 1930 (published 1932), p.246; Berwick, 1889, Bolam, G., *H.B.N.C.* **27**, pt 2, 1930 (published 1932), p.246; Tyne Valley, 1932, Harrison, J.W.H., *H.B.N.C.* **27**, pt 2, 1930 (published 1932), p.246; Scremerston, 7.viii.1955, Pelham-Clinton, E.C., T C Dunn & J D Parrack, 1992, *The Moths and Butterflies of Northumberland and Durham, Pt. Two, Microlepidoptera.*

I was also sent four specimens of a *Dichrorampha* sp. taken in a garden in Berwick on 23 May 2012; these I suspected as being examples of *D. acuminatana* (Lienig & Zeller). I dissected the genitalia on one and was surprised to find it was in fact a male *D. aeratana* (Pierce & Metcalfe). I sent two specimens to Jon Clifton who also agreed that they were this species, the first authenticated records for North Northumberland (VC68).

In April and May I decided to concentrate on leaf mines, this paid off in finding three sites for *Eriocrania unimaculella* (Zett.) as follows: Havannah Local Nature

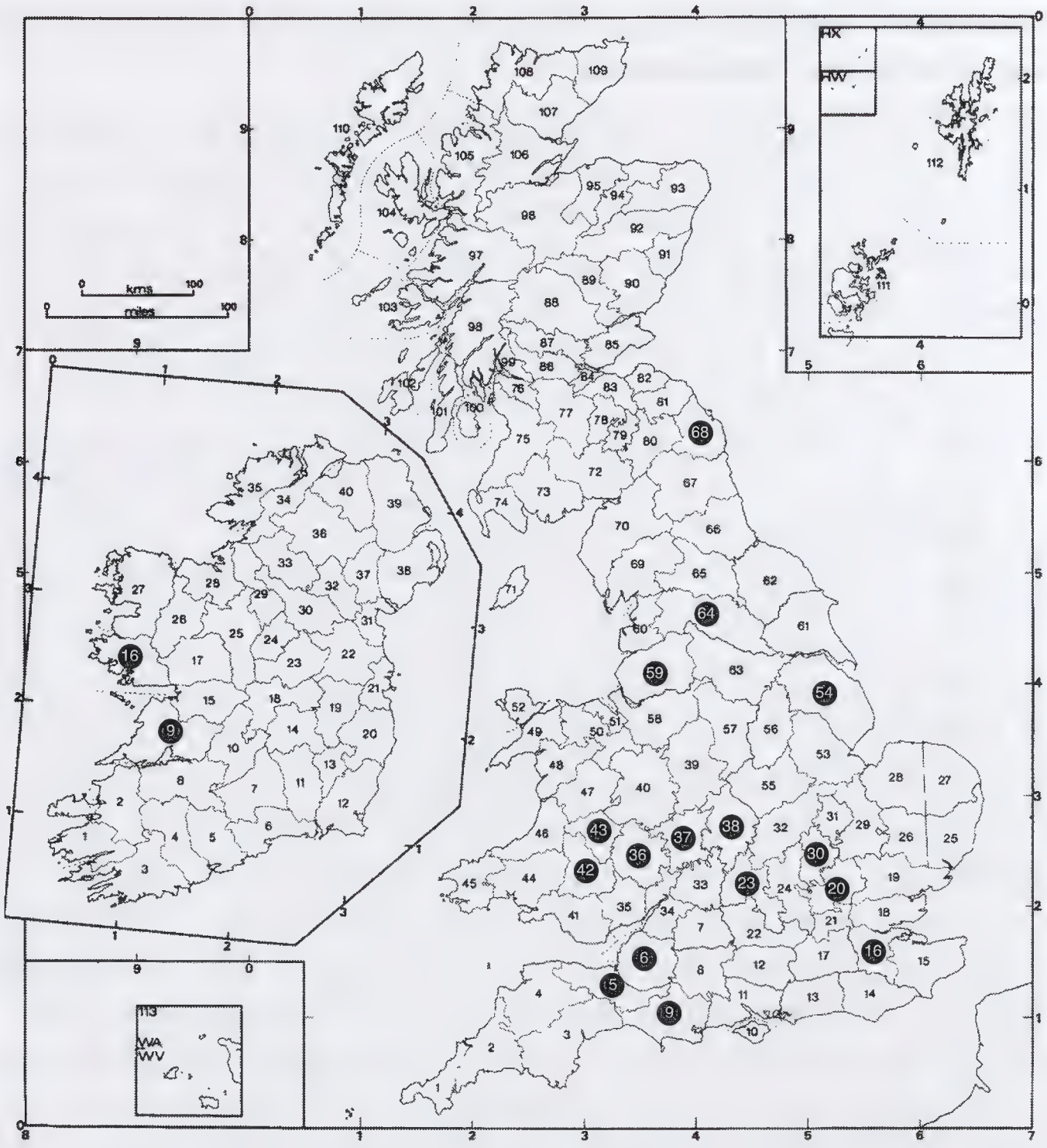


Fig. 1. The known, current distribution of *Coleophora frischella* (L.) in the British Isles.

Reserve, Hazelrigg, 23.v.2012, 40 tenanted mines; Gosforth Park Nature Reserve, 20.v.2012, 1 tenanted mine; Longhorsley Moor, 29.v.2012, 20 tenanted mines.

These represent the first records for South Northumberland (VC.67).

A specimen of *Spuleria flavicaput* (Haw.) was netted at Big Waters, near Brunswick on 5 June 2012 by Jonathan Wallace, provided yet another new Northumberland record.

Coleophora juncicolella Stt. is also not previously recorded in Northumberland, but between 28.iv.2012 to 21.v.2012 four sites have been found for it, at: Longhorsley Moor, 28.iv.2012, 4 larval cases (A.J. Fairclough); Debden Estate, Rothbury, 2.v.2012, 2 larval cases (A.J. Fairclough); Simonside, 12.v.2012, 4 larval cases (T.J. Tams); Holystone Common, 21.v.2012, 1 larval case (A.J. Fairclough).

Finally, mention may be made of *Stigmella centifoliella* (Zell.). Leaf mines in Burnet Rose *R. pimpinellifolia* collected at Druridge Bay, Northumberland on 6.v.2012 by A. J. Fairclough wer bred through to provide adults of this species. — Tom Tams, 191 Links Road, Tynemouth, Northumberland NE30 3TQ.

Adaptation of the hind legs for display by the male Gold Swift *Hepialus hecta* L. (Lep.: Hepialidae)

It is well-known that the males of two of the five species of swift moths (Hepialidae) found in the UK produce pheromones from organs on their hind legs (for review see Mallet, 1984. Sex roles in the ghost moth *Hepialus humuli* (L.) and a review of mating in the Hepialidae (Lepidoptera). *Zool. J. Linn. Soc.* **80**: 67-82) and are 'lekking' species. The Ghost Swift *Hepialus humuli* has hair-like brushes (illustrated in Hansen, & Jensen, 2005. Colour morphs of the Ghost Moth *Hepialus humuli* L. (Lepidoptera, Hepialidae) in the Faroe Islands. *Ent. Meddr.* **73**: 123-130) which are everted during the display flight (photos in Mallet, *op.cit.*; Picozzi, 2010. Observations on the display of the Ghost Moth *Hepialus humuli* (Linn.) in north-east Scotland. *Atropos* **40**:43-48) and remain everted should the male rest briefly on vegetation during the display period (Picozzi & Espie, 2011.

Plate 16. Male *Hepialus hecta* L. "calling", using hind legs. **Inset**: detail of hind leg of male.

Interpretations on the display of the Ghost Moth *Hepialus humuli* L. (Lep.: Hepialidae) and the role of pheromones. *Entomologist's Rec. J. Var.* **123**: 182-184).

Observations I made of the behaviour of the Gold Swift *Hepialus hecta* in June 2011 showed its display to differ somewhat from that of the Ghost Swift. I could see that the scent papillae of the males were everted and the body arched during their display flights just as in the Ghost Swift but, as a prelude to copulation, males would suspend themselves vertically beneath a frond of Bracken *Pteridium aquilinum*, holding on by one or both pairs of forelegs. The hind legs were then thrust forward showing the shiny, grossly enlarged tibia and associated rosette of scent-producing papillae (Plate 16), their structure unlike the fine hair-like brushes of the Ghost Swift. The males 'called' from this position, initially by fluttering outstretched wings, the forewings then slowly lowered to a 'delta-wing' position and the hind wings more closely cupping the abdomen. It was possible to observe them very closely through a hand lens without disturbing them at this stage and I noticed that the extended hind tibia intermittently trembled extremely rapidly. This would no doubt increase the dispersal of pheromone, the more so when the hind wings were cupped as described above. It also probably explains why the metatarsus/tarsus is either absent or, at best, vestigial in this species. In the female, they are long structures, as they are on the forelegs of the males. However, in the display described here, they would be an inconvenience, so it is perhaps no surprise that they have been all-but dispensed with (inset on Plate 16).

Slides of the hind legs were prepared for me by Cedric Holmes, to whom I am most grateful.— NICHOLAS PICOZZI, Talsarn, Arbeadie Terrace, Banchory, Kincardineshire, Scotland AB31 5TN.

Spruce Carpet *Thera britannica* (Turner) (Lep.: Geometridae) in late March in Devon

During the warm late afternoon of 27 March 2012 we disturbed a male Spruce Carpet *Thera britannica* (Turner) from mixed vegetation at the edge of a conifer plantation on the north Devon coast near Mill Mouth (VC 4). Two days later, one of the hottest that month, RJH found another male of the same species resting on the side of a cattle trough in a field on the south Devon coast west of Hoist Point (VC 3).

These appear to be fairly early records of a moth not usually seen before May. — MISS S. D. BEAVAN, The Hayes, Zeal Monachorum, Devon EX17 6DF and R. J. HECKFORD, 67 Newnham Road, Plympton, Plymouth, Devon PL7 4AW.

SCYTHRIS CRASSIUSCULA (HERRICH-SCHÄFFER) (LEP.: SCYTHRIDIDAE) BIVOLTINE IN THE COTSWOLDS

G. H. J. MEREDITH

23 Highland Road, Cheltenham, Gloucestershire GL53 9LU.

Abstract

Records of *Scythris crassiuscula* (Herrich-Schäffer) on Cotswold grasslands in late August and September provide evidence that the species is bivoltine in this habitat, contrary to its description as a univoltine species in two recent publications.

Introduction

The micro-moth *Scythris crassiuscula* (Herrich-Schäffer) may be found on unimproved Cotswold grasslands where its foodplant Common Rock-rose *Helianthemum nummularium* grows. Bengtsson (1997), referring to an earlier description of its phenology in Courtois (1992), describes it as flying from June to early August in Europe and in Great Britain (Bengtsson 2002) as univoltine, emerging June-July. Since my first record of the species in 2003, I have found the adult on a much wider range of dates (from 19 May to 29 September) and in such large numbers on some occasions in late August and September as to suggest a fresh emergence. After noticing this effect in several previous years I deliberately looked for the species on more occasions in 2011 with the result that of the 35 records I have made in total, 17 were from 2011 on 10 dates which included both my earliest and latest records in any year. All records were based on specimens identified by dissection; this was necessary because *S. picaepennis* (Haworth) also occurs in similar habitat and may look identical to *S. crassiuscula*.

Second generation in 2011

Early in their flight period, adults may quite easily be found feeding on flowers (often the Rock-rose) where they are quite conspicuous. They may also be seen walking around in short turf if one looks closely, though this is not as productive as sweeping with a net which can quickly produce several specimens where none had been seen moving. By late August there are relatively fewer plants in flower on which the adults can take nectar, so with an apparently fresh, large emergence at one site near Nailsworth (VC 34) on 21 August 2011 almost every suitable flowerhead (mostly Yarrow, yellow composites such as Dandelion, Cat's-ear or Hawkbit, and the umbellifer Burnet-saxifrage) had at least one feeding adult, and often several – particularly where males had assembled to a female. These specimens looked very fresh, not what one would expect from a univoltine species which had already been on the wing for three full months. I had found the species at three nearby sites on 1 July 2011, but no specimens when visiting this and three other sites in the area on 22 July (though sweeping for it produced some other

Plate 17. *S. crassiuscula* feeding. Near Nailsworth, 29 September 2011.

interesting records that day including *Teleiodes sequax* (Haw.), *Syncopacma taeniolella* (Zell.) and Six-belted Clearwing *Bembecia ichneumoniformis* (D.& S.). This absence followed by abundance one month later is strong evidence for a second generation in 2011, and chance observations from several previous years suggest that this was not exceptional. The species was still numerous on 29 September when five were noted on one flowerhead (Plate 17), so some adults probably survived well into October.

Conclusion

Figure 1 shows the distribution of records from VC 33 & VC 34 (East and West Gloucestershire) by tetrads (2 x 2km squares); the chart above the map shows the distribution of records with each month split into three periods (1-10, 11-20, 21-end). The solid bars represent relative numbers of adult records not population sizes, and the open top to the late May bar represents a larval record from 1987.

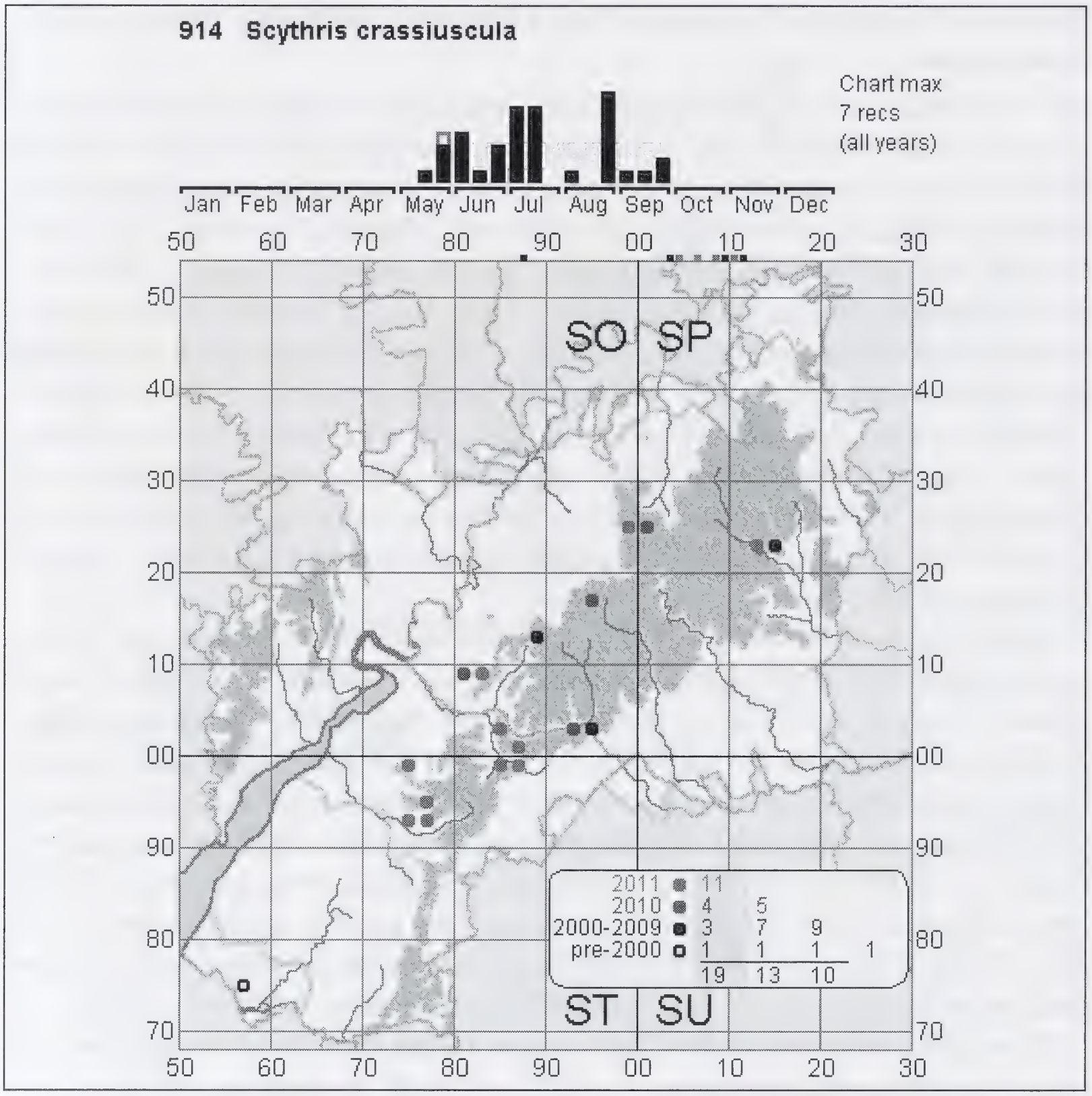


Fig. 1. Distribution of *S. crassiuscula* records in VC 33 & VC 34.

From late July to mid August there is just one record (1 August 2010), whilst from late August to late September there are 11 records in total from 2004, 2006, 2009, 2010 & 2011. The map is from the Gloucestershire Moth Distribution Maps page on the Butterfly Conservation Glos. Branch website at *http://www.gloucestershire-butterflies.org.uk/Guys_maps/ mothmap.html.*

The records suggest that *S. crassiuscula* is frequently, and perhaps normally, bivoltine in the UK, at least in the Cotswolds.

References

Bengtsson, B.Å., 1997. *Scythrididae*. In Huemer, P., Karsholt, O. & Lyneborg, L. (Eds.). *Microlepidoptera of Europe* **2**: 1-301. Apollo Books.

Bengtsson, B.Å., 2002. *Scythrididae*. In Emmet, A. M. & Langmaid, J.R. (Eds.). *The Moths and Butterflies of Great Britain and Ireland* volume 4 part 1, Harley Books.

Courtois, J.-M., 1992. Étude d'une population de *Scythris* d'une pelouse calcicole de Lorraine (Lep. Scythrididae), *Ent. gall.* **3**: 22-23.

A very early record of Brindled Pug *Eupithecia abbreviata* (Steph.) (Lep.: Geometridae)

On 14 February 2012 I visited a favourite, small, oak woodland in an attempt to record the first Spring Usher *Agriopis leucophaearia* ([D. & S.]) for Fifeshire (VC85). It was a relatively mild evening and there were some insects flying in the gathering darkness as I set up the trap in a small clearing. I'm sorry to say that I had not checked my generator beforehand and it expired at around 7.30pm after just 90 minutes of trapping time. However, I was pleased to find a healthy number of Pale Brindled Beauty *Phigalia pilosaria* ([D. & S.]) fluttering on surrounding tree trunks along with a few *Tortricodes alternella* ([D. & S.]), a Chestnut *Conistra vaccinii* (L.) and as I had hoped, the first vice county record of Spring Usher *Agriopis leucophaearia*. I was also rather amazed to seetwo pugs on the ground sheet. These were very unexpected and I tentatively identified them as Brindled Pug *Eupithecia abbreviata* (Steph), later confirmed by Roy Leverton from photograph.

According to Mironov (2003. *The Geometrid Moths of Europe* vol. 4), the earliest flight time of this species, presumably over the whole of Europe, is "early March". Riley & Prior (2003. *British and Irish Pug Moths - A Guide to Their Identification*) suggests the last week in February. The East of Scotland Butterfly Conservation website shows flight times of all Scottish species based on records submitted to the National Moth Recording Scheme (*http://www.eastscotland-butterflies.org.uk/ mothflighttimes.html*) and the earliest record there is also the last week of February, with mid-March being more usual. It might be that mine is the earliest record of Brindled Pug *Eupithecia abbreviata* anywhere – all the more amazing when one considers that Scotland is at the northern edge of its range.

Thanks to Roy Leverton for confirming my identification of the pugs and for supplying literature references. — DUNCAN W. W. DAVIDSON, 140 Pitcorthie Drive, Dunfermline KY11 8BJ. (E-mail: *duncan@dwwd.freeserve.co.uk*)

***Lycia zonaria* D. & S. Belted Beauty (Lep.: Geometridae) in Britain and France**

The recent article by Spill (2011. 15 années d'observations de *Lycia zonaria* D. & S. dans le Parc naturel régional des Vosges du nord (Lep. Geometridae). *Oreina* **16**: 6-7) should be of some interest to British lepidopterists, since it becomes clear from this that the ecological factors apparently controlling distribution of the moth in France and Great Britain appear to be completely different. The distribution map given for France shows that the moth, as the non-British subspecies *zonaria* (D.& S.), is restricted to the east of the country at inland sites; Spill (personal communication) comments that although it is an extremely local species "I am lucky to see it in my garden and around". The British populations, on the other

Figure 1. Distribution of *L. zonaria* in Great Britain.

hand, are found only in coastal habitats on the west of Wales, England, Scotland and Ireland (Fig. 1), mostly as subspecies *britannica* (Harrison) except for in parts of the Hebrides where the smaller subspecies *atlantica* Harrison prevails.

Howe, M. A., Hinde, D., Bennett, D., & Palmer, S., (2004. The conservation of the Belted Beauty *Lycia zonaria britannica* (Lepidoptera, Geometridae) in the United Kingdom. *Journal of Insect Conservation* **8**: 159-166) provide a valuable review of known data for the British population of the moth. Observations have revealed that in Lancashire the larvae feed throughout the upper saltmarsh zone on its favoured food-plant of *Leontodon autumnalis* (at other sites, different plants are utilised). These areas are periodically, if infrequently, inundated by seawater

during high tides and gales, and on the day I visited the site, males were found actually on the water surface. Clearly, eggs, larvae and adults are submerged at times in seawater. Lepidopterists are constantly monitoring and managing these sites which are threatened by habitat losses due, in large part, to construction of caravan sites, car parks and by coastal protection schemes. Several environmental improvement schemes have been carried out over the last few years, but sadly only the Lancashire colony appears to have any future, the other sites are on the verge of extinction.

Spill comments further that "the difference in the habitat is curious, but very interesting" adding that he feels that "I think that this species can adapt other areas and could so be found in other places". Whilst Spill's personal observations may be correct for France, howerver, this is certainly not the case in Britain.

I would like to thank Steve Palmer for providing my with a copy of the document of which he was a co-author and François Spill, for helpful e-mailed comments on an earlier draft of this Note. — GRAHAM WENMAN, 77 Ludlow, Church Stretton SY6 6AD. (E-mail: gjwenman@yahoo.co.uk).

Some noteworthy moth records from Werrington, Peterborough, in 2011

I have been operating a Robinson trap with a 125W MB/U bulb in my garden in Werrington, Peterborough, Cambridgeshire (Vice-county 32 Northamptonshire, O.S. grid ref. TF1640303337, 11 metres a.s.l.), since February 1991. The trap is run at least once a week and often twice a week whenever I am at home, except in late December and January. In 2011 I was away in May, September and late November to the first half of December, but I still managed to operate the trap on 56 nights. The records from the moth trap are supplemented with incidental finds of adult moths and caterpillars. Full details of the habitats in the garden, the overall list for macro-moths for the site, with periodic updates, and other observations, have been published previously in this journal and elsewhere, of which the key references are Waring (1992. *Butterfly Conservation News* **51**: 59-62, 52: 48-56; 1993. *Butterfly Conservation News* **54**: 52-61; 1994. *Ent. Rec.* **106**: 91-100; 2002. *Ent. Rec.* **114**: 165-168; 2004. *Nature in Cambridgeshire* **46**: 53-61; 2005. *Huntingdonshire Moth & Butterfly Group. Annual Report* **15**: 29-39; and 2008. *Ent. Rec.* **120**: 15-17).

My first record for 2011 was a Dark Chestnut *Conistra ligula* in my light-trap on 7 January. Then followed a predominantly cold dry continental winter, lasting well into March. March was the driest since 1953. April was the warmest, driest and sunniest since detailed weather recording began in 1910 (Met. Office data). It was refreshingly that the winter was so continental in pattern, as with the previous winter, after a long series of mild, damp winters. Continental winters seem to favour winter survival of moths and either larger than average catches in the spring, or more concentrated emergences of spring

species. The warmth of April also brought on an expected run of early first dates for many species:

Cossidae

Leopard Moth *Zeuzera pyrina* (L.): 26 June (1). Interesting because it is not seen in the garden most years. Previously it has only been seen in 1991, as singletons, on 22 and 29 July.

Pterophoridae

Common Plume Moth *Emmelina monodactyla* (L.): 31 Dec (1). This frequent brown plume moth was in my trap when I inspected it at midnight on 31 December, so it counts as my very last moth of 2011, rather than my first of 2012!

Geometridae

Treble Brown-spot *Idaea trigeminata* (Haw.): 20 June, 26 June. Another species which has increased in both distribution and population density nationally since the 1980s and which is now recorded regularly in my garden;

Blue-bordered Carpet *Plemyria rubiginata* (D. & S.): 15 June (1). This species was first recorded in the garden on 3 July 1994, was seen again in 1996 and has since been seen most years from 2003. All this following my planting of a hedge containing Blackthorn *Prunus spinosa* in 1992;

Red Green Carpet *Chloroclysta siterata* (Hufn.): 20 April (1), 29 Sept (1), 11 Oct (1). First recorded 5 October 2007, now annual;

Peppered Moth *Biston betularia* (L.): typical form on 4 June (1), 15 June (3), 20 June (1), 24 June (2), 26 June (3), 4 July (3), 22 July (1). No melanic forms featured. The frequencies of the melanic and intermediate forms have declined in recent decades, since the enactment of the Clean Air Act during the 1950s;

Light Emerald *Campaea margaritata* (L.): Second generation individuals, smaller in size, on 18 Aug (1), 30 Aug (1), 1 Sept (1). In the 1970s and 1980s in Oxfordshire it was unusual to see more than one or two Light Emeralds late in the summer, and they were not seen every year. Now a partial second generation is an almost annual occurrence. A gradual warming of the annual climate is considered the cause.

Sphingidae

Privet Hawk *Sphinx ligustri* (L.): The first of the year here was on 4 June, in fresh condition. This is not exceptionally early compared with the run of years since 1991 at this site, but often the species starts a few days later;

Lime Hawk *Mimas tiliae* (L.): 29 April (1), 8 June (2 males). This long spread between dates has happened here before. I have previously had the occasional adult in April as well. Lime trees are frequent in the local gardens and roadsides and there is a strong population of this moth in Werrington, and more generally in the Peterborough area. The alternative larval foodplants of birch *Betula* spp. and

elm *Ulmus* spp. are also present in Werrington, though less abundant until the outskirts of the built-up area are reached.

Lymantriidae

White Satin *Leucoma salicis* (L.): 4 July (1 worn), 9 July (1 fair), 13 July (1 fair). Three individuals in the same year is higher than the average number at the current trapping frequency. Poplars *Populus* of several species, on which the larvae feed, are quite numerous in the area, with at least five trees in view of the light trap. The population density is thought to cycle somewhat markedly in response to the depredations of certain parasitoids;

Vapourer *Orgyia antiqua* (L.): 26 June (2 males). Interesting that two males turned up on the same single night in the light-trap. Several males were seen flying by day in Werrington after these;

Arctiidae

Orange Footman *Eilema sororcula* (Hufn.): Two individuals, both pale and worn, on 28 May. The first record for this garden was on 27 May 2006, followed by additional individuals on 24 May 2007 and 9 June 2008 and now evidently breeding very near.

Noctuidae

Mullein Shark *Shargacucullia verbasci* (L.): 14 April (1). This is quite an early record. It is also noteworthy because I see only occasional adults of this species in the garden, although most years I find a few caterpillars on the Dark Mullein *Verbascum nigrum* I have seeded all over our garden;

Clouded Brindle *Apamea epomidion* (Haw.): 31 May (1). Not a usual capture in this garden, although resident in the local woods on the Milton Estate to the west of Werrington, the nearest of these being Belham Wood just 1 km away;

Large Nutmeg *Apamea anceps* (D. & S.): A frequent *Apamea* in June, well established in this area, but localised and southern in the UK;

Coronet *Craniophora ligustri* (D. & S.): one only, of the dark green form, 11 June.

Broad-barred White *Hecatera bicolorata* (Hufn.): 20 June (1). I have found the caterpillars of this moth on *Crepis* spp. by our pond;

Gothic *Naenia typica* (L.) and Dingy Shears *Parastichtis ypsillon* (D. & S.) 30 June followed Dingy Shears 4 July (2). Neither species is ever numerous in the garden trap, but both are recorded almost annually and breeding is suspected amongst the vegetation surrounding our pond;

Southern Wainscot *Mythimna straminea* (Treit.): 9 July (1). Not commonly seen in the garden and easily overlooked amongst other species of *Mythimna* so I tend to report those I see;

Slender Brindle *Apamea scolopacina* (Esp.): 9 July (1). I think of this as a woodland moth dependent on grasses in clearings in woods. That was certainly the case during my years of light-trapping in Oxfordshire, from 1976

to 1986 and with subsequent visits, and that has proved to be the habitat in which I have seen greatest numbers in other counties, as far north as Cumbria. However, I am wondering if it also breeds along the ditches through the open areas surrounding Werrington. In the last few years I have had several, presumed wandering through the garden. I would expect more however if they were breeding around our pond, by which I operate the light-trap;

Silver Y *Autographa gamma* (L.): 9 July (2), 28 July (1), 7 Oct (1), 11 Oct (2). Various correspondents in 2011 commented on the scarcity of this immigrant moth until July. And even though migrant moths of many species, sometimes in numbers, were recorded on the south coast of England in 2011, it was not a particularly good year inland. The above is a very small number for the year at this site.

Old Lady *Mormo maura* (L.): Six individuals in the trap on 24 Aug (two very worn, two worn, two fair), 9 on 30 Aug. (of which five were in good condition, two were fair, one was worn and one was very worn) and 4 Sept (1). Nine individuals in one trap in one night is an exceptional occurrence anywhere, especially in view of the fact that this species has a reputation for coming to sugar and wine-ropes much more reliably, and seldom to light. I have evidently produced superb habitat for Old Lady moths around my pond by the trap. This agrees with the few observations of Old Lady caterpillars being found in the wild, low down in damp vegetation, often near water. For the record, the weather conditions on the night on which I had the nine were dry, calm and cloudy after an overcast day. The temperature at dusk was 14°C, falling to a minimum for the night of 12°C. This total of nine individuals appears to be the largest British total for Old Lady moths in one light-trap in a night, and is equalled only by a single catch in Tony Steele's garden in Kent, according to the results of searches by Les Hill of the database of the National Moth Recording Scheme and of searches and enquiries I have made of other potential sources of information;

Dusky-lemon Sallow *Xanthia gilvago* (D. & S.): 29 Sept (1). A recent arrival to the garden. The first record was on 20 October 2007 (one male, one female) and it was seen again on 27 October 2007 (1). It was not recorded in 2008 or 2009 but in both years I was absent for most of its flight period. It was seen again in 2010, with records on 30 September (1) and 8 October (1). Probably it is breeding on elms planted in my hedgerow in 1991/92 that have now become sufficiently mature and dense, though so far I have not found the larvae;

Blair's Shoulder-knot *Lithophane leautieri* (Boisd.): Now frequent, and sometimes the most numerous moth in the catch in late September and October;

Grey Shoulderknot *Lithophane ornitopus* (Hufn.): 24 Oct (1). I recall the local moth-trappers considering this a new colonist to the Peterborough area in

1987. Still not a species I see often or reliably in my garden, which lacks any mature oaks *Quercus,* but the late dates on which it flies do not help in its detection;

Merveille Du Jour *Dichonia aprilina* (L.): 31 Oct (one immaculate). Resident and well established in the local oakwoods, but seldom seen in my open garden, in which the only oaks are a couple of small bushes that I have planted in my garden hedge;

Dark Chestnut *Conistra ligula* (Esp.): 25 Dec (1). This hibernator proved to be both the first and last macro-moth I recorded in my garden during 2011.

Of the many species not seen in 2011 but previously recorded in my garden, I note the Four-spotted *Tyta luctuosa* (D. & S.). This UK Biodiversity Action Plan Priority Species continues to breed successfully only 1 km to the west at Werrington Brook Drain where I monitor it annually, but it is only seen very occasionally in my garden. It is absent most years and the occasional individuals seen are presumed dispersing wanderers. No Garden Tiger moths *Arctia caja* (L.) were seen in 2011. The last individual seen at this site was an adult in the trap on 2 July 1992, the species having also been recorded here in 1991.

Finally, I can report a Hornet *Vespa crabro* L. (Hym.: Vespidae) on 30 Sept at Ivy bloom – which is the first I have seen at this site. I mention it here because it is a predator of moths and sometimes a major concern during light-trapping in other counties in which I operate. I have always lived with them when I find them and they are as familiar as an old friend, but not in Werrington! They are known to be expanding their distribution northwards in Great Britain, perhaps as another consequence of climate change.

With chunks of the year missed due to the trips abroad in May, September and November-December, I have not attempted any statistics on the proportions or identities of species expected but not seen during the year, nor other comparisons. I find that running a light-trap on a regular basis in my garden produces results that are always of interest. The results are, of course, supplied to the County Moth Recorder. The records help in the detection and documentation of the expansions and contractions in the national distributions of our moths, and the increases and declines in population density, over and above the interesting smaller-scale local changes and fluctuations in phenology from year to year, which are revealed by the data whenever one has time to investigate and analyse. — PAUL WARING, 1366 Lincoln Road, Werrington, Peterborough PE4 6LS (E-mail: paul_waring@btinternet.com).

New County and interesting Lepidoptera records in Devon in 2011

The following moth records seems worthy of placing on record:

Zygaena lonicerae latomarginata Tutt.: Narrow-bordered Five-spot Burnet. New County Record. North Devon Link Road, embankment, near Sampford Peverell, 20.vi.2010, 329, and 03.vii.2010, 145 adults during the day. Devon Link Road, Uplowman section, near Sampford Peverell, 12.vi.2010, 34, and 28.vi.2010, 54 adults during the day. All recorded by P. Bowers; the identification was confirmed by B. Henwood who bred adults from larvae collected at one of the sites. Further specimens of pupae were taken by B. Henwood in 2011; and bred to adults by myself.

Spoladea recurvalis Fabr.: Hennock, 13.x.2011, one at light, B. Bewsher, is the first record of this species since F. H. Lees took three at light, Maidencombe, 7.ix.1952 (2) and 9.ix.1952 (1).

Oxyptilus laetus Zell.: The first records of this species in Devon since 1928 (*Ent. Rec.* **108:** 114), when a flush of these appeared at the end of June going into July, 2011. Bere Alston, one in a polytunnel, 30.vi.2011, P. Barden and determined by genitalia by C. Hart.; Exmouth, one at light, 2.vii.2011, G. Wisdom; Prawle Point, two netted during the day, 3.vii.2011, P. Barden; Berry Head, three boxed during the evening, 11.vii.2011, S. Beavan and B. Heckford; Berry Head, two boxed during the evening, 12.vii.2011, S. Beavan and B. Heckford.

Cyclophora ruficiliaria (H.- S.) Jersey Mocha: New County Record. Goat Island, near Seaton, 30.vii.2011, one at light, B. Henwood.

Itame brunneata Thunb. Rannoch Looper: New County Record. Zeal Monachorum, 4.vi.2011, one at light, S. Beavan; Newton Abbot, 4.vi.2011, one at light, B. Hutton; Brook Manor Wood, near Buckfastleigh, 4.vi.2011, one at light, K. Cox; Dawlish, one at light, 3.vi.2011, one at light, P. Franghiadi; Colaton Raleigh, 4.vi.2011, two at light, J. McKay; Bridford Village, 3.vi.2011,one at light, D. Price.

Trignophora flammea Esp. Flame Brocade: The last known Devon record of this species is at Newton Poppleford, near Sidmouth, 10.ix.1953, with the previous one to this, Maidencombe, 2.x.1946 (*Ent. Rec.* **59**: 1 & 2). Two specimens were taken at light in 2011, in very close localities and within a couple of days of each other at Colaton Raleigh, 30.x.2011, J. McKay and Colyford, 1.xi.2011, P. Vernon. Both of these were verified by myself.

Xanthia ocellaris D.& S. Pale-lemon Sallow: New County Record. Exeter, Heavitree, 11.x.2011, one found dead in a spiders web, G. and J. Jarvis; Uplyme, near Lyme Regis, 28. to 30.ix.2011, three at light, O.Woodland. All the specimens were confirmed by myself. — Roy F. McCormick, 36 Paradise Road, Teignmouth, Devon TQ14 8NR.

Two unusual Psocoptera – *Pteroxanium kelloggi* (Ribaga) and *Badonnelia titei* Pearman indoors in Northamptonshire

On 29 September 2011 an unusual looking psocid ran in front of my microscope on the workbench of my first floor study at Hemington, Northamptonshire (TL 091852), reminiscent of an earlier encounter with *Badonnelia titei* Pearman (see below). On tubing the specimen, a quick glance showed it to be a species unfamiliar to me. Closer examination a week or so later revealed the elytriform fore wings, multi-segmented antennal flagella and a somewhat denuded covering of scales, characteristic of *Pteroxanium kelloggi* (Ribaga), the only confirmed resident species of Lepidopsocidae occurring out-of-doors in Britain. New (*Handbk. Ident. Br. Insects* **1**, pt.7, 1974 1st Edition, 2005 2nd Edition) does not mention the distinctive clump of outstanding dark hairs at the shoulder of each fore wing, and they are not obvious on his habitus figures. Enderlein (1922, *Entomologist's mon. Mag.,* **58**: 101-104), in his description of this species as *Pteroxanium squamosum* nov. spec. from a house near Crow-borough, Sussex (TQ 5130), on 1 October 1920, provides magnified illustrations of the individual scales and hairs on the wings. Smithers (1972, *The Australian Museum,* Sydney, *Memoir 14*) depicts the position of these long hairs in his figure of the Chilean species *P. funebris* Badonel.

The Barkfly (Psocoptera) National Recording Scheme's distribution map on the National Biological Network Gateway website shows a cluster of records in the Lothian/Borders Region south of Edinburgh. These reflect the presence of the former Scheme Organizer, the late R. Saville. Elsewhere in the British Isles records of *P. kelloggi* appear relatively few and widely scattered, with a paucity in southeast England. The nearest locality to that presented here was from Wicken Fen, Cambridgeshire, where it was recorded by Gambles (1932, In: Gardiner (ed.) *The Nat. Hist of Wicken Fen*, Part IV) as abundant in the thatch of a hut beside main Drove (TL 5570). The only other mapped locality from East Anglia is from West Runton Heath, Norfolk (TG 1741) where K. N. A. Alexander collected it off *Ulex gallii* on 3 September 1997. It was also recorded from Sedlescombe, Sussex (TQ 7718), by P. Roper on 5 October 2005, under 30 km southeast of the type locality.

New (*op. cit.*) describes *P. kelloggi* as found predominantly in leaf litter and, more rarely, on vegetation (on bark and dead foliage of a variety of trees). K. N. A. Alexander, the current Barkfly Recording Scheme Organizer reports (*pers. comm.*) occasionally tapping this species from dead aerial branches in the north and west of Britain. It remains a mystery how it came to be in my first floor study, although it could have entered via an open window from the Virginia Creeper covering the outside wall. No specimens have been noticed previously when beating living and dead branches of a range of tree and shrub species in my garden.

Badonnelia titei (Pearman) was first described by J. V. Pearman (1953, *Entomologist's mon. Mag.*, **89**: 262) from a single female found in the Zoological Museum, at Tring, Hertfordshire (SP 9211) on 10 August 1953, and originally

placed in the Pachytroctidae. After finding more specimens Pearman (1958, *ibid*, **94**: 49-52) published a more detailed description with comprehensive illustrations of both sexes, which he now placed in the Sphaeropsocidae. New (2005, *op. cit.*) states it to be "the sole European species of the family, … possibly a native, but more probably a sporadic introduction, in the process of becoming naturalised". In February 1980 I identified the second British record of *B. titei*, a female from a house in Hemingford Grey, Cambridgeshire (TL 3070) (Welch & Plant. 1980, *Entomologist's Rec. J. Var.,* **92**: 123-124). Three years later this species turned up at Monks Wood Experimental Station, Cambs. (TL 2079) and between January 1983 and May 1991 a total of five females and three males were recorded in the building. With one exception, all were from my room (Welch, 1983, *Entomologist's mon. Mag.,* **119**: 296; 1987. *Rep. Huntingdon. Fauna Flora Soc.,* 39th (1986): 9-11; 1992, *Entomologist's Mon. mag.,* **128**: 118). Since then I have recorded *B. titei* on three occasions in my house at Hemington. Two specimens were collected on the worksurface of my study in exactly the same position as the *P. kelloggi* described above; a male on 4 March 1993 and a female on 2 May 1994, prior to which, on 22 March 1994, a second male was collected from the ground floor kitchen worksurface. These records, together with the three specimens from Hemingford Grey, are the only so far known from private houses in Britain. *Badonnelia titei* is now known from a number of museums in north west England (Garland, 1994, *Entomologist's mon. Mag.,* **130**: 228) and from three Irish Institutions which O'Connor & Smithers (1999, *Entomologist's mon. Mag.,* **135**: 242) believe to be the result of their introduction in antiquarian books. This would seem to be the most likely means by which this species was introduced both into Monks Wood Experimental Station and later into my study at Hemington. — R. Colin Welch, The Mathom House, Hemington, nr. Oundle, Northamptonshire PE8 5QJ.

Oak Eggar *Lasiocampa quercus* (L.) (Lep.: Lasiocampidae) larva recorded on food-plant previously unrecorded in Sussex (VC14)

On 24 March 2012, I surveyed an area of gorse *Ulex europaeus* approximately one mile to the north east of the Denton area of Newhaven in East Sussex (VC 14; O.S. grid reference TQ4603). The location is locally known as Heighton Hill. The weather during the survey, from 12.45 to 17.30 hours, was unseasonably warm and sunny with a south-easterly breeze of Beaufort Force 2 and maximum temperature of 20° Celsius.

The dense growth of gorse and low-growing bramble *Rubus fruticosus* agg. made netting and beating perilous. Visual counts produced a similar result in terms of species and numbers present in the beating tray, so the tray and net were slung back over my shoulder and I relied primarily on my eyes. Species recorded included Small White *Pieris rapae*, Small Tortoiseshell *Aglais Urticae*, Peacock *Inachis io*, Pine Ladybird *Exochomus quadripustulatus*, Harlequin Ladybird

Harmonia axyridis forms *spectabilis* and *succinea*, 7-spot Ladybird *Coccinella septempunctata* (223 examples) and Gorse Bug *Piezodorus lituratus* (74 examples). With the exception of *P. lituratus*, this was a comparably modest return.

Towards the end of the survey, at grid ref. TQ 472038, I discovered an early instar larva of the Oak Eggar *Lasiocampa quercus* basking in full sunshine in a sheltered position on a Gorse twig. The tough spines of the plant by the head of the larva had clearly been eaten. Tutt (1905. *Practical Hints for the Field Lepidopterist*. Facsimile reprint (1994), Amateur Entomologists' Society: Orpington) includes gorse amongst a long list of food-plants for this species, but gorse had never previously been reported as such a food-plant in Sussex. Pratt (2011. *A Complete History of the Butterflies and Moths of Sussex, Volume 2*. Privately published) lists the Sussex (VC 13 & 14) food-plants as bramble, hazel, honeysuckle, *Veronica*, heather, *Camellia*, periwinkle, garden rose, spruce and broom *Cytisus scoparius*. Of these potential food-plants, in addition to gorse only some low-growing bramble was present at this location growing in sporadic patches, but the larva was in an elevated position. It was a reasonable conclusion therefore that this larva was feeding on gorse. Broom and gorse are, of course, fairly closely related, both belonging to the Leguminosae. An e-mail request to Colin Pratt, the County Recorder of moths and butterflies for East and West Sussex, resulted in his confirmation that this was the first record in Sussex of the Oak Eggar feeding on Gorse. The extensive growth of this plant on the chalk Downs to the east of Newhaven may therefore help support populations of this moth, which is reasonably well recorded in the area.

Plate 18. Habitat features of Heighton Hill, Sussex.

Using data provided by the Sussex Biodiversity Record Centre, it can be confirmed that only 21 county records have been made since 1991 of the larval stages of this moth. These include two sightings made near Rye Harbour (TQ 9418) in late October and mid December 1998, which were presumably of early instar larvae, given the opinion that the two-year larval habit is rare in Sussex (Pratt, 2011). All other Sussex sightings range from an earliest date of 16 March to a latest date of 20 July, when larvae would have been seen following emergence from hibernation and feeding during later instars prior to pupation. This includes one such record of a final instar larva that I recorded basking on a cultivated spindle *Euonymus* in Newhaven on 18 April 2009.

Many thanks are owed to Colin Pratt for confirming the record and for his assistance in preparing this report. Thanks also to Penny Green at the Sussex Biodiversity Record Centre for providing recorded data for the larval stages of the Oak Eggar. — STEVEN M. TEALE, 14 Claremont Road, Mount Pleasant, Newhaven, East Sussex BN9 0NG (E-mail: clicka15@ymail.com).

Moths and hay bales

As a young farmer in the 1960s, 70s and early 80s, working on the family farm near Faringdon, in the Upper Thames Valley west of Oxford, I manually handled large numbers of hay bales every summer. Today, nearly all the work is done by machine, but back then we had someone (usually me) standing on a bale sledge behind the baler, catching the bales as they came out and stacking then on the back of the sledge. When there were eight bales, stacked four bales high, they were slipped off the sledge and left standing in the field until there was time to stack them on a trailer and transport them to the barn. While they stood in the field they were a suitable hiding place for moths. Many noctuids would squeeze between the bales, along with the butterflies *Inachis io* (L.) and *Aglais urticae* (L.). Occasionally other moths, mainly Geometridae, would rest on the outside of the stack.

The first hay bales were normally made in June, the timing being very much weather dependent, with hay bales still in the field into August in poor summers. It was my job to throw the bales up onto the trailer, where they were stacked for the journey home. This gave me the opportunity to see what moths were present among the bales. Over the years I compiled a list of species found in this way. I never recorded numbers, although I remember that these could be considerable, especially if the bales stayed in the field for more than a few days. It was not unusual to find seven or eight species in a single stack. Besides species that had found a safe place to shelter for the day, there were aestivating species which if allowed, would probably have stayed there for some weeks. For example *Noctua comes* Hb. was a species that I did not see in any numbers at the light trap when they first emerged at the beginning of July, but which was often common among

the bales during July. The vast majority of the species were common noctuids with larvae feeding on low-growing plants, which naturally hide by day in vegetation and detritus at ground level. One exception that was quite a regular was *Parastichtis ypsillon* (D. & S.), with larvae feeding on *Salix* (willows and sallow), but nevertheless with adults hiding low down by day. A few species may have been attracted to the hay as a food source for their larvae, as much as for shelter. These were *Paradrina clavipalpis* (Scop.) (an old name was the Hay moth) and the pyralids *Hypsopygia costalis* (Fabr.) and *Ephestia elutella* (Hb.). The latter is not usually considered to be an outdoor moth in England, but I regularly saw it around hay bales in fields closer to the farm buildings.

In August and September we baled straw on a neighbour's farm. Although *Noctua pronuba* L. and *Mesapamea secalis* agg. could be present in large numbers, straw was overall less productive than hay, doubtless because there are fewer species flying after mid-August, but it did add a few additional species that were not flying earlier.

The list that follows includes several species that are no longer present on the farm. This is part of the widely recognised decline in many common moth species over the last 30 years. For these species I have given the last year in which they were seen on the farm, including light trapping records. For one of these species, *Spaelotis ravida* (D. & S.), looking among hay bales was the best way of finding it. All the Geometridae listed were resting on the exposed sides of the bales.

I have no doubt that the list would be longer if hay bales had been left in the fields from earlier in the year and later into the autumn, but there are also a few surprising absentees from the list, notably *Xestia triangulum* (Hufn.), *Apamea anceps* (D. & S.) and *A. epomidion* (Haw.).

Hepialus sylvina (L.) (once only amongst straw bales)
Agonopterix heracliana (L.) (straw bales)
A. arenella (D. & S.) (straw bales)
Hypsopygia costalis (Fabr.)
Ephestia elutella (Hb.)
Timandra comae (Schmidt)
Xanthorhoe ferrugata (Cl.)
Scotopteryx chenopodiata (L.)
Camptogramma bilineata (L.)
Chloroclysta truncata (Hufn.)
Alcis repandata (L.)
Euproctis similis (Fuessly) (only once)
Phragmatobia fuliginosa (L.) (only once)
Euxoa tritici (L.) (last seen on farm in 1979)
E. nigricans (L.) (last seen on farm in 1982)
Agrotis exclamationis (L.)
A. ipsilon (Hufn.)
Ochropleura plecta (L.)
Rhyacia simulans (Hufn.) (last seen on farm in 2002)
Noctua pronuba L.
N. comes Hb.
N. interjecta Hb.
Spaelotis ravida (D. & S.) (last seen on farm in 1989)
Graphiphora augur (Fabr.)
Diarsia rubi (View.)
Xestia c-nigrum (L.)
X. sexstrigata (Haw.)
X. xanthographa (D. & S.) (straw bales only)
Naenia typica (L.)
Melanchra persicariae (L.)
Lacanobia oleracea (L.)
Mythimna ferrago (Fabr.)
M. conigera (D. & S.)

M. impura (Hb.)
M. pallens (L.)
Agrochola circellaris (Hufn.) (once only, straw bales)
Amphipyra pyramidea (L.) (straw bales)
A. tragopoginis (Cl.)
Phlogophora meticulosa (L.)
Parastichtis ypsillon (D. & S.)
Cosmia pyralina (D. & S.) (only once)
Apamea monoglypha (Hufn.)
A. lithoxylaea (D. & S.)
A. sordens (Hufn.)
A. remissa (Hb.)
A. ophiogramma (Esp.)
Oligia latruncula (D. & S.)
Mesoligia furuncula (D. & S.)
Mesapamea secalis (L.) agg.
Luperina testacea (D. & S.) (straw bales)
Hoplodrina alsines (Brahm)
H. blanda (D. & S.)
Paradrina clavipalpis (Scop.)
Autographa gamma (L.) (only on outside of stack)
Catocala nupta (L.) (once only on outside of stack)
Hypena proboscidalis (L.) (only on outside of stack)

I am grateful to Thomas Merckx for comments on the first draft of this Note.—
MARTIN CORLEY, Pucketty Farm Cottage, Faringdon, Oxfordshire SN7 8JP (E-mail: martin.corley@btinternet.com)

Philophorus cinnamopterus **(Kirschbaum, 1856) (Het.: Miridae) in Edinburgh – a new species for Scotland**

A co-ordinated "BioBlitz" was held at Hollyrood Park, Edinburgh, on 15 and 16 August 2009. This event, organised by British Trust for Conservation Volunteers Scotland (BTCV Scotland) and Historic Scotland, was part survey and part public outreach with a headline aim of recording as many species of wildlife as possible in 24 hours. On the afternoon of the first of these dates, I beat a number of Hemiptera from trees alongside Hunter's Bog (at O.S. grid reference NT 273733). One of these, beaten from a small Scots Pine *Pinus sylvestris*, I later identified as an adult *Philophorus cinnamopterus*. The specimen is retained in my collection.

P. cinnamopterus is thought of as a southern species in Britain. Saunders (1892, *The Hemiptera Heteroptera of the British Isles*. Reeve) cites records of the species from Norfolk, the London area and from near Cardiff, whilst Southwood & Leston (1959, *Land and Water Bugs of the British Isles.* Warne) give the range as being south of a line from the Wash to Glamorgan. However, there are a handful of more recent records from further north; the species was recorded at Hatfield Moors in South Yorkshire in 2004 by the late Peter Skidmore and John Flanagan took a specimen in Derbyshire in around 2007. The Edinburgh specimen reported here is, though, the first for Scotland.

Recent Scottish records of the presumably long-established Juniper Shieldbug *Cyphostethus tristriatus* (*Het News*, 2nd series, no. 9: 11-12; *Ent. Rec.* **121**: 5-6; *Ent. Rec.* **122**:154) show that even very distinctive species may have been overlooked. It is plausible that *P. cinnamopterus* may likewise have been

previously overlooked. If, on the other hand, it is recently arrived in Scotland then, alongside natural range expansion, accidental importation must be considered a possibility, especially given the urban surroundings to the recording site.

My thanks go to John Flanagan, Bernard Nau, Stewart Rivers, Joe Muir, Ruth Mitchell and Ben Moore for useful input.— NICK A. LITTLEWOOD, Macaulay Land Use Research Institute, Craigiebuckler, Aberdeen, AB15 8QH (E-mail: littlewood@macaulay.ac.uk).

Mompha jurassicella (Frey) (Lep.: Momphidae) – some recent records

Since 1992 I have dissected dark-coloured examples of Momphidae, including over-wintering specimens, from Bedfordshire (VC30), north Buckinghamshire (VC24) and Northamptonshire (VC32). Up to 2009, about one hundred and fifty specimens have been dissected, all *Mompha subbistrigella*, apart from eight *Mompha bradleyi*.

Peter Almond gave me a moth caught on 30 October 2009 at Bromham, Bedfordshire (VC30; O.S. grid reference TL 0050), which I determined as *Mompha jurassicella*, new to VC30. Over the recent winter, 2011-2012, I have determined seven further specimens of *Mompha jurassicella* in this area. These records indicate a recent expansion in the range of this species.

The records are from the following sites:

Willen, Buckinghamshire. (VC 24; SP 8741), indoors on 25.xii.2011 and 14.ii.2012 (Frances Higgs);

Clifton, Bedfordshire (VC 30; TL 1639), two moths on 15.iii.2012 (Alan Outen);

Biggleswade , Bedfordshire (VC30; TL 1944), to Mv light on 15.iii.2012 (Lionel Burgess);

Northampton (VC 32; SP 7458), 23.ii.2012 and 23.iii.2012 (Martin Coles) – this is a species new to VC32.

— DAVID MANNING, 27 Glebe Rise, Sharnbrook, Bedford MK44 1JB.

NOTES ON THE DISTRIBUTION AND ECOLOGY OF THE GATEKEEPER BUTTERFLY *PYRONIA TITHONUS* (L.) AB. *EXCESSA* TUTT IN BRITAIN AND EUROPE (LEP.: NYMPHALIDAE)

RUPERT BARRINGTON

Damson House, Church Lane, Freshford, Bath BA2 7WD.

Abstract

The distribution and varying degree of expression of the extra-spotted aberration *excessa* Tutt of the Gatekeeper Butterfly *Pyronia tithonus* in England, Wales and Ireland is discussed. Evidence is presented which extends the generally accepted range of its most extreme expressions in England from Devon and Cornwall to as far north as Cumbria. Information is presented on the European distribution and expression of this aberration. Comparisons are made with studies on the ecology of multiple-spotted forms of the Meadow Brown Butterfly *Maniola jurtina* L. and Large Heath Butterfly *Coenonympha tullia* L. An idea is proposed to explain the western bias in frequency and degree of expression of *excesssa.*

Keywords Spotting; distribution; inheritance; cline; avian; ecology; bask.

Description of ab. *excessa* Tutt

Tutt (1896) raised the name *excessa* with the following description: 'individuals of both sexes frequently have one, two, three or even four extra spots [on the forewings], usually blind, sometimes larger and ocellated = ab. *excessa.* On the hind wings there is usually one, small ocellated spot, sometimes two or even three'.

Since then many further aberrational names have been bestowed upon this species to cover all manner of combinations and sizes of extra spotting. Goodson and Read (unpublished), in their admirable effort to apply the laws of priority to the clutter of aberrational names and synonyms given to our Lepidoptera, failed to find clarity in this case. In their manuscript they include eleven names to cover specimens showing different numbers of extra hind wing spots or combinations of extra fore and hind wing spotting. The sort of problem this can lead to is well illustrated in Emmet and Heath (1989). On plate 5, two adjacent illustrations of Gatekeeper specimens, showing the same extra-spotted condition are, for no obvious reason, given separate names (*multiocellata* Oberthür and *excessa*).

The problem stems from Tutt's slightly ambiguous description: did he intend *excessa* to refer only to extra spotting on the forewings, or on all wings? Goodson and Read interpreted it as the former, which forced their hand into accepting all manner of other names.

However, this writer believes that Tutt's description was intended to cover all variations on the theme of extra spotting, whether on fore or hind wings, or both. This renders all other names invalid. In any case, it makes sense in light of experimental breeding results (below), which show that the production of extra fore and hind wing spotting is genetically connected, and that the degree of extra

spotting is an example of 'continuous' variation. So applying artificial distinctions between specimens with different numbers of spots does not reflect biology.

Distribution of *excessa* in the British Isles

The aberration *excessa* has been found throughout England, and also in Wales and Ireland. But it does not occur evenly across all populations. Tim Melling (pers. comm.) estimated its frequency at Denby Dale, Yorkshire as 10% of the population. Martin White (pers. comm.) has recorded *excessa* in only two Nottinghamshire colonies out of many searched. Richard Revels (pers. comm.) noted an average frequency in East Midlands populations during the 1960s and 70s of about 5% *excessa.* Aaron Jones (pers. comm.) notes an average of 2-4% *excessa* in Surrey. Andrew Brown (pers comm) noted the remarkable frequency of about 50% of specimens with forewing *excessa* at Kingsweston Down in Bristol in 1968. The writer finds that the aberration occurs at a rate of about 3% in some locations in North Dorset and South Gloucestershire while it is scarce in others populations in the region. Malcolm Callow (pers. comm.) finds *excessa* very scarce in the Wareham/Swanage region of east Dorset. Similarly Brian Fensome recorded very few *excessa* in a large Gatekeeper population in the Bridport area of West Dorset. Frazer and Wilcox (1975), surveying several populations in Southern England, recorded it at around 10% in the populations they sampled.

The proportion of specimens showing *excessa* in a population may vary year on year. Leeds (1951) described a colony near Wood Walton, Hunts in which the proportion of *excessa* grew each year until the site was ploughed and the colony lost. Richard Revels notes that in the East Midlands the proportion in various colonies fell from 5% during the 1960s and 1970s to about 2.5% in more recent times. However, the most striking aspect of the distribution of *excessa* has long been recognised as an increased frequency and more extreme degree of expression in the south-western counties of Devon and Cornwall. Barrett (1893) gave an early clue to this distribution when he recorded that Major Still of Seaton found specimens with two extra, white-pupilled spots on each forewing 'rather commonly on some of the slopes of Dartmoor'. These slopes were near Tavistock and entomologists interested in butterfly variation subsequently honed in on the high ground around the town. Notables of the day such as L. W. Newman, J. F. Johnston, H. A. Leeds and Reverend A.T. Stiff all recorded striking examples of *excessa* here. One of these specimens is illustrated by Frohawk (1914). Wheeler (1918-19) said forms showing multiple spotting on fore and hind wings were 'so common in the neighbourhood of Dartmoor that so far from being rare one may reckon on obtaining a dozen or more any morning during the season'. However the focus by collectors on this one area masked the true distribution of the exaggerated expressions of *excessa*. The late Robert Craske remarked that 'Tavistock only became the mecca because the town's station was on the London line'.

In fact *excessa* with large, extra, forewing spots (not uncommonly pupilled) and multiple hindwing spots, has been found in many parts of Devon and Cornwall. Gerald Tremewan (pers. comm.) describes it as 'frequent and regular' in Cornwall. The writer has examined all the specimens of *excessa* in the National Collection at the Natural History Museum, London. All of the most strongly developed examples were captured in Devon and Cornwall. A very few, fairly well-developed examples of *excessa* came from more easterly areas, but otherwise all specimens from outside of the south west were lesser expressions of the aberration. This distinct distribution is alluded to in few published works on British Butterflies, though not discussed in any detail, e.g. Emmet and Heath (1989).

Extending the range of strongly developed *excessa*

In examining various published sources the writer has found records, which appear not to have been subsequently remarked upon, that show the previously accepted range of strongly developed *excessa* (Devon and Cornwall) to be incorrect. Barrett (1893) wrote of finding specimens with extra fore and hindwing spotting 'commonly in a lane close to the sea in Pembrokeshire' [South Wales]. Wheeler (1918-19) also wrote of finding multiple spotted forms commonly in Wales. He specified Pembrokeshire, but said the extra spots were usually confined to the upper side and were smaller than those found in Devon and Cornwall. D.W. Thorpe-Young (1957) exhibited at the Annual Exhibition of the South London Entomological and Natural History Society 'heavily spotted aberrations from North Cornwall and Manorbier' (South Wales). Frazer and Wilcox (1974) examined specimens on the Pembrokeshire coast of south Wales (from Nolton Haven to Strumble Head) in 1965. They focussed on upper side hindwing spotting and found the species 'very highly spotted', with almost 50% of male specimens of the species having 3 or 4 hindwing spots. J. A. Thompson (1952), in a report on the butterflies of the North Wales coast, wrote of 'the prevalence of extreme extra-spotted forms in one or two localities. Let those who will go to Tavistock!' J. de Vine Hall (1951) reported, from an isolated, coastal colony in West Cumberland (Cumbria), 'the remarkable tendency towards the production of extra spots… sometimes large and ocellated… being by no means uncommon. Extra spots on the hind wings, sometimes lanceolate in shape, are by no means uncommon.'

These records indicate that the increased development and frequency of *excessa* is not confined to Devon and Cornwall. Clearly a similar situation occurs in south and north Wales and in one place in Cumbria. So there is a possibility of a more or less continuous range for this form from the southwestern peninsula to Cumbria. More fieldwork is required to confirm this. Unfortunately not enough information is available to judge frequency or development of spotting in Irish populations. Kane (1893) stated that he had not observed *excessa* in Ireland. However when Kenneth Bond (pers. comm.) examined the 100 or so specimens in the general collection of the National Museum of Ireland in Dublin he found several females with two extra forewing spots and one extra hindwing spot from south Kerry.

Cline or quantum change?

Does the increased frequency and degree of expression of *excessa* in the west of its range in Britain represent the far end of a cline, of the kind found in spotting on the wings of the Large Heath Butterfly? That species exhibits a north-south cline, changing from an almost spotless condition in the north to a heavily spotted condition in the south. Or might a situation exist with similarities to the famous quantal change in the Meadow Brown Butterfly? In this species underside hindwing spotting in the female shifts from a mode of low spot numbers in a population to a mode of higher spot numbers over a short distance in Cornwall (Dennis, 1992).

The evidence available does not suggest an east-west or north-south cline. Richard Revels' observations in the East Midlands differ little from the writer's in north Dorset. Malcolm Callow and Brian Fensome find *excessa* scarce in East and West Dorset. Yet in the adjacent county of Devon the strongly expressed form is prevalent. This suggests that some kind of change must occur between Dorset and central Devon. Frazer and Wilcox (1975) indicated that they had gathered evidence of a sharp, quantal change in spotting between colonies they examined in Wales, but unfortunately included no data.

Distribution of *excessa* in Europe

Lempke (1934) believed that *excessa* only occurs at higher frequencies in Britain and in the Sardinian race *fulgens* Turati. Verity (1940-53), in his work on Italian butterflies, mentions two specimens of what he calls *quadripuncta* (two extra spots on the forewings) and rates it as '*rarissima*'. L'Homme (1923) mentions only two records of *multiocellata* (= *excessa*) from France. Frazer and Wilcox (1975) surveyed the upper side hindwing spotting of a number of satyrids, including the Gatekeeper, in a number of sites across Europe. Their data suggested the possibility of a cline in extra hindwing spotting from the high levels they recorded in Pembrokeshire to increasingly low levels as they sampled southwards through France and into Spain. However they reported that forewing *excessa* occurred across all surveyed sites in Europe at about 10% of the population. Only in Sardinia was the situation different, with 50% of specimens showing forewing *excessa*. Since experimental breeding work (below) indicates that both fore and hindwing extra spotting is controlled by the same multifactorial gene complex, the suggestion that extra hindwing spotting alone forms a cline across Europe, while forewing spotting does not, is surprising and intriguing.

In an attempt to throw further light on the matter the writer searched for additional data. A number of entomologists in the Netherlands, France, Germany and Spain kindly looked through private, University and National collections, scanning for evidence of *excessa* across many hundreds of specimens, while adding information from their own fieldwork. Only a few specimens were recorded showing forewing *excessa*, and not a single one showed an exaggerated

expression. There was no clear evidence for extra hindwing spotting. This scarcity was supported by evidence from fieldwork. Among the few specimens recorded most were from French collections in the Natural History Museum of Paris, but since they had no locational data nothing can be inferred from this. This general scarcity of *excessa* appears to run counter to Frazer and Wilcox's observations of 10% of forewing *excessa* in all populations they surveyed except Sardinia. There was also no indication of a cline in hindwing spotting.

Only further sampling across a wide area of Europe could clarify what may be a complicated situation. However the results above confirm that the situation of high levels of *excessa* is confined to Western England and Sardinia. So far the writer has been unable to examine specimens from Sardinia to ascertain whether or not they are ever as strongly developed as those in western England.

Inheritance of *excessa*

Revels (1977) details a breeding experiment over two generations, starting with captured female specimens of *excessa* from the East Midlands. He concluded that it is inherited on a multifactorial basis (i.e., it does not separate out into Mendelian ratios, but presents a continuous range of expressions in each brood, on both fore and hind wings). This author has bred *excessa* in two strains, both originating from female *excessa* captured in Devon. One strain was reared to the second, inbred generation, the other to a third. The results were similar to those of Revels. However as this strain involved the more extreme expression of the form, the specimens produced were markedly more heavily spotted on both fore and hind wings than those from Revels' strain. The appearance in all broods of specimens showing extra spotting on fore, hind or all wings indicates that extra spotting on fore and hind wings is genetically connected.

Ecology of spotting variation in related species

Nothing can yet be said with any certainty about the ecology underlying the distribution of *excessa* in England, but studies of regional variation in the spotting of two related species have yielded such interesting results, with such a similar theoretical basis, that it seems not unreasonable to assume that a close study of *tithonus* might provide comparable results. Tim Melling studied the Large Heath. He explained the north-south cline of increasingly heavy spotting by correlating this with the increasing amounts of 'flying time' available, due to increased levels of sunshine and warmth. In a study of Meadow Pipit (*Anthus pratensis* L.) droppings on a Northumberland moor 'every single faecal pellet I analysed was crammed with Large Heath scales' (pers. comm.). He proposes that heavy and numerous spotting on the butterfly's wings is an advantage in the south, where the butterfly is more frequently airborne and the spots act to deflect bird attacks away from the body. But to the north, cooler, cloudier conditions force the butterfly to spend more time at rest. Here reduced spotting aids crypsis.

Meadow Brown females tend to be more highly spotted on the underside of the hind wings in broken, irregular habitats, whereas they are most often spotless in even, grassland habitats. Brakefield (1984) proposes a model to explain this. He found a significant correlation between increased female flying time in broken habitats and extra spotting. His suggestion is that in these habitats the increased amount of time spent in the air makes the butterflies more vulnerable to avian predation. Therefore the extra hindwing spotting is an advantage as it can act to deflect avian attack. In more uniform habitats the females fly less and the lack of underside hindwing spotting offers a cryptic advantage, as with the Large Heath.

How significant is avian predation on British butterflies?

Tim Melling's study of the Large Heath is the only one of its kind in Britain that provides evidence to directly relate significant mortality of a species of butterfly with persistent avian predation. It therefore indicates that avian predation may be a factor in the evolution of wing patterns. Before questioning whether the distribution of the Gatekeeper ab. *excessa* may also be related to avian predation it seems pertinent to query whether birds are generally significant predators of British butterflies. This has been debated for many years and even today some knowledgeable ornithologists largely discount the idea. The problem stems from a general recognition that there have been too few observations of such attacks (Dennis, 1992). On the other hand, a fascinating paper by Collenette (1935) strongly supports the idea of heavy avian predation. He listed (often with circumstantial detail) 262 observations of attack by 39 species of birds on a range of British butterfly species (mainly pierids and satyrids), the majority attacked when the butterflies were airborne. He notes that few records were made of attacks on resting/roosting butterflies because such attacks would be less easily seen. Yet in his observations of beak marks on the wings of living butterflies (indicating an attack from which the butterfly escaped) he noted that such markings are frequently found duplicated on both sides, indicating that the butterfly was captured at rest, when its wings were closed. The main predators observed were the House Sparrow, Spotted Flycatcher, Swallow and Robin. Since all of these observations were made casually, by observant naturalists, they probably represent the 'tip of the iceberg'.

A couple of other observations may be of interest (and many similar can probably be found in the various entomological journals). Cornell (1919) notes '*L.*[*imenitis*] *sybilla* [White Admiral Butterfly] is more pursued by birds than any other butterfly I know of. I counted over twenty attempts at capture by birds in less than fifteen minutes'. This writer has regularly observed Swallows sweeping up and down a meadow in Dorset during the emergence period of the Meadow Brown, capturing the adults in flight with an audible snap of the beak. So agile is the swallow that they rarely miss their target. Their toll on the population must be large. A study in California may also be relevant. Shapiro (1977) notes that of

19,787 specimens of four species of butterfly examined in 1972 in central California, 5.3% showed beak marks on the wings and most of these markings were duplicated on both sides, indicating attack on resting or roosting butterflies.

The above observations suggest that avian attack on the adults of some species of British Butterflies is probably a significant factor in their mortality.

Why does the incidence and expression of the Gatekeeper ab. *excessa* increase in the west of England?

If extra spotting in the Gatekeeper was linked to increased flying time, as in the Meadow Brown and Large Heath, then one would expect populations in eastern or south coastal areas of England, which have the highest hours of sunshine, to produce the most highly spotted forms. But this is not the case. The adult's habitat of hedges and bushes is the same in the west as across the species' range, so there is no reason to suppose that the species is exposed to different avian predators in this region. In any case the western distribution of *excessa* does not tie in with any increased population densities of relevant insectivorous birds (John Marchant, British Trust for Ornithology, pers comm). So the explanations for extra spotting in the Meadow Brown and Large Heath appear to fail in the case of the Gatekeeper. How then to explain the distinct distribution of *excessa*?

A clue may be provided by a difference in the nature of extra spotting in the Gatekeeper. In both the Meadow Brown and Large Heath the extra spotting is largely an underside phenomenon. But in the Gatekeeper the extra spotting is very evident on both surfaces, and is usually more strongly developed on the upper surface. Perhaps this, and the distinct climate of western regions of England, provide the answer. In the west one would expect the species to fly *less* than in many other parts of its English range because the Atlantic influence leads to a more cloudy climate. However the climate of the region is still warm. Like many butterflies the Gatekeeper basks with wings open, to heat up. Butterflies generally bask for longest on warm but overcast days, when it then takes longer to raise their body temperature. So it may be that on average the species basks for longer in western regions than elsewhere. The hedge/bushy habitat in which the adults live is an excellent one for insectivorous birds. When basking with wings open the butterflies would lose the cryptic advantage they have when roosting and thus expose themselves to those predators. If this increased level of basking in the west can be proven by future observation then it would not be unreasonable to propose that the extra degree and development of spotting on the upper surface of the wings in the region is a response to increased vulnerability to avian attack.

This theory does not explain why there may be a fairly abrupt change in spotting between Dorset and Devon (a similar situation with the Meadow Brown in Cornwall also awaits explanation). Further research is also required to ascertain whether a similar climatic model could explain the high levels of spotting in Sardinia.

Acknowledgements

I am grateful to many people who have generously helped with information. John Marchant provided information on population densities of insectivorous birds. Tim Melling gave me details of his PhD thesis on avian predation on the Large Heath. He also, along with Andrew Brown, Malcolm Callow, Brian Fensome, Howard Frost, Aaron Jones, Richard Revels, Gerald Tremewan and Martin White provided details of the distribution and proportions of *excessa,* in different regions of England. Barry Goater recommended numerous lepidopterists across Europe who might provide information on the occurrence of *excessa*. Many went out of their way to help. Bernard Lalanne-Cassou of the Paris Museum examined the museum's collections and sent excellent photographs of a number of specimens of the Gatekeeper. Axel Hausman examined the collection of the Zoologische Staatssammlung München, Germany. Wolfgang Nässig examined the collections of the Forschungsinstitut und Naturmuseum Senckenberg, Frankfurt, Germany. Ulf Eitschberger gave information from his fieldwork in Germany. Walter Mey of the Humboldt-Universität zu Berlin examined the various collections in his charge, including those of Staudinger, Püngler and Urbahn. Hans Coene examined private collections. Willy de Prins and Harry van Oorschot examined the collections of the Zoological Museum of Amsterdam. Enrique Garcia-Barros examined the collections of the Universitad Autónoma, Spain. Kenneth Bond examined specimens in the National Museum in Ireland. Chris Luckens sent details of the European distribution of the Gatekeeper and checked some key European reference works. Robert Goodden sent a photograph, with data details, of the specimen of ab. *excessa* from his own collection, which was illustrated by Frohawk (1914).

References

Barnett, R., Higgins, R., Moulin, T., Wiltshire, C., et al., 2003. *Butterflies of the Bristol Region.* Bristol Environmental Records Centre.

Barrett, C. G., 1893. *The Lepidoptera of the British Isles*, volume 1. Reeve.

Brakefield, P. M., 1984. The ecological genetics of quantitative characters of *Maniola jurtina* and other butterflies. In R.I. Vane-Wright and P. R. Ackery, (Eds), *The Biology of Butterflies,* Symposium of the Royal Entomological Society, Number 11: 167-190. London: Academic Press.

Collenette, C. L., 1935. Notes concerning attacks by British Birds on Butterflies. *Proc. Zool. Soc*. 1935.

Cornell, E., 1919. Some notes on the butterflies of the south coast of the Isle of Wight, 1919. *Entomologist,* **52**: 279.

Explanation of Plate 19

Figure 1 is a minor expression of *excessa*. Figures 2-4 represent the average degree of development of *excessa* across England, except for western regions. Figures 5-10 show the more strongly developed form of *excessa* from western regions. Figure 10 also shows a streaked white, hindwing spot, ab. *postlanceolata* Leeds. This is part of the expression *excessa*, and therefore reaches its most extreme development in the west.

Plate 19. 1. Male. Captured North Dorset 1993; **2.** Male. Captured North Dorset 1983; **3.** Female. Captured Somerset 1996; **4.** Female. Captured North Dorset 1983; **5.** Male. Bred F2 Devon 1997; **6.** Female. Bred F2 Devon 1997; **7.** Male. Captured Devon 1995; **8.** Male. Bred Devon F3 2001; **9.** Female. Bred F3 Devon 2001; **10.** Female. Bred F3 Devon 2001.

Dennis, R. L. H., (Ed), 1992. *The ecology of butterflies in Britain*. Oxford University Press

Emmet, A. M and Heath. J., 1989. *The Moths and Butterflies of Great Britain and Ireland.* Volume 7, Part 1. Harley Books.

Frazer, J. F. D. and Wilcox, H. N. A., 1975. Variation in spotting among the close relatives of the butterfly *Maniola jurtina. Heredity* (1975), **34** (3): 305-322.

Frohawk, F.W., 1914. *Natural History of British Butterflies.* Hutchinson & Co: London

Goodson, A. L. and Read, D.K., *Aberrational and subspecific forms of British Lepidoptera.* Unpublished manuscript: British Museum (Natural History).

Kane, W. F. de V., 1893. Catalogue of the Lepidoptera of Ireland. *Entomologist* **26**: 214.

Leeds, H. A. 1951. Comment on J. de Vine Hall's article. *Bulletin of the Amateur Entomologists Society* **10** (125): 45-46.

Lempke, B. J., 1934. *Pyronia tithonus* L. et ses formes. *Lambillionea* **7**: 155

L'Homme, L., 1923. *Catalogue Lépidoptères de France*. Paris.

Penhallurick, R.D. 1996. *The Butterflies of Cornwall and the Isles of Scilly*. Dyllansow Pengwella.

Revels, R. C., 1977. Notes on breeding ab.*excessa* Tutt of the Gatekeeper (*Pyronia tithonus* L.). *Entomologist's Rec. J. Var.* **89**(2): 43-44.

Shapiro, A. M., 1977. Avian Predation on butterflies – Again. *Entom. Record* **89**: 293-295

Thomas, J. and Lewington, R., 2010. *The Butterflies of Britain and Ireland.* British Wildlife Publishing.

Thomson, J. A., 1952. Butterflies of the Coastal Region of North Wales. *Entomologist's Rec. J. Var.* **64**: 161-166.

Thorpe-Young, D. W., 1958. Report of exhibit at the Annual Exhibition. *Proc. Trans. S. Lond. Ent. nat Hist. Soc.*, **1957**: 41.

Tutt, J. W., 1896. *British Butterflies*. George Hill & Sons, London.

Verity, R., 1940-53. *Farfalle Diurne d'Italia.* Firenze: Marzocco.

Vine Hall, J. de, 1951. Problems of local variation (1). *Bulletin of the Amateur Entomologists Society* **10**(125): 44-45.

Wheeler, Rev. G. (1918-19). The variation of *Epinephele tithonus* L. *Proc. Trans. S. Lond. Ent. nat Hist. Soc.*, 1918-1919: 30-31.

Phycitodes saxicola (Vaughan) (Lep.: Pyralidae) in mid-April

During a visit to the Axmouth to Lyme Regis Undercliffs on 12 April 2012 a female *Phycitodes saxicola* (Vaughan) (confirmed by genitalia examination) was disturbed from near some Sea Mayweed *Tripleurospermum maritimum* at the base of the cliffs just east of Culverhole Point (VC 3). This seems to be an exceptionally early date for a moth that is normally not recorded before late May/early June. We are grateful to Mr T. Sunderland (Natural England) for permission to record there.— R. J. HECKFORD, 67 Newnham Road, Plympton, Plymouth, Devon PL7 4AW & B. P. HENWOOD, Greenacre, 6 Lakeland, Abbotskerswell, Newton Abbot, Devon TQ12 5YF.

TWO NEW SPECIES OF PLATYGASTROIDEA (HYMENOPTERA) FROM IRELAND

[1] PETER NEERUP BUHL AND [2] JAMES P. O'CONNOR

[1] Troldhøjvej 3, DK-3310 Ølsted, Denmark
(e-mail: pnbuhl@hotmail.com)

[2]Emeritus Entomologist, National Museum of Ireland, Kildare Street, Dublin 2, Ireland

Abstract

Two species of microwasps, *Platygaster ashei* sp. nov. and *Telenomus fergussoni* sp. nov., are described as new to science.
Keywords: taxonomy, Ireland, new species, Platygastrinae, Telenominae.

Introduction

Two species new to science were present among a batch of mostly platygastrids (*sensu lato*) collected by JPOC and sent to PNB for identification. These are described below. Bionomics of the new species are unknown, but knowledge of related species suggests that *Platygaster ashei* sp. nov. (Platygastrinae) is most likely an egg-larval parasitoid of Cecidomyiidae (Diptera) while *Telenomus fergussoni* sp. nov. (Telenominae) is most likely an egg parasitoid of Miridae (Hemiptera). The holotypes are preserved in the National Museum of Ireland. Terminology: standard abbreviations used are A1-A10 = antennal segments 1-10, OOL = distance between lateral ocellus and eye, LOL = distance between lateral and anterior ocelli, and T1-T6 = tergites 1-6.

Platygaster ashei sp. nov.

Material examined. Holotype ♀: Ireland, Wexford, Slieve Coiltia (Irish grid reference S7221), 4.viii.2011, J.P. O'Connor (NMI). Paratypes: 3 ♀♀, 1 ♂ same data (NMI, 2 ♀♀in the Zoological Museum, University of Copenhagen).

Diagnosis. Head from above more than twice as wide as long, behind with about five strong transverse carinae, the posterior ones of which are markedly oblique; female A9 1.2 times as long as wide; mesoscutum smooth almost all over, notauli indicated in posterior two-thirds; scutellum smooth; female metasoma fully as long as rest of body, hardly as wide as mesosoma; T2 striated to half of length, medially smooth.

Description. ♀. Body length 1.4 mm. Black; mandibles, base of fore and mid tibiae, apex of fore tibiae, and segments 1-4 of all tarsi dark brown.

Head from above (Plate 22, Figs 1, 2) 2.2 times as wide as long, 1.1 times as wide as mesosoma; occiput with about five strong transverse carinae to a width slightly wider than ocellar area, posterior carinae markedly oblique, occiput towards sides also finely transversely reticulate-coriaceous; vertex finely reticulate (not transversely so); frons finely and obliquely reticulate-striated out

Plate 20. *Telenomus fergussoni* sp. nov. ♀, dorsal view.

Plate 21. *Telenomus fergussoni* sp. nov. ♀, lateral view.

from a smooth and slightly impressed longitudinal midline, sculpture strongest in lower half. OOL:LOL = 4:3. Head in frontal view 1.3 times as wide as high. Antenna (Plate 22, Fig. 3) with A1 0.8 times as long as height of head, as long as distance between inner orbits; A9 1.2 times as long as wide.

Mesosoma (Plate 22, Figs 2, 4) 1.3 times as long as wide, hardly higher than wide. Sides of pronotum longitudinally reticulate-coriaceous, smoother in hind corner just in front of tegula and along narrow upper and hind margins. Mesoscutum with rather evenly scattered, sparse setae, smooth except for being slightly coriaceous along margins and anteriorly of notauli, these weak, visible only in posterior two-thirds; mid lobe posteriorly moderately blunt, very slightly prolonged towards base of scutellum, at each side with about eight rather inconspicuous setae over each scuto-scutellar groove. Mesopleuron smooth, with very faint longitudinal sculpture just below tegula. Scutellum smooth, slightly above level of mesoscutum, evenly convex, towards sides densely setose. Metapleuron dull, evenly covered by rather dense pilosity. Propodeal carinae short, parallel; much transverse area between them smooth except for a couple of short crenulae.

Fore wing 0.8 times as long as entire body, 2.5 times as long as wide, clear, with dense and rather long microtrichia; marginal cilia 0.07 width of wing. Hind wing 6.0 times as long as wide, with two hamuli; marginal cilia 0.27 width of wing.

Metasoma (Plate 22, Figs 2, 4) between 1.0 and 1.1 times as long as head and mesosoma combined, slightly narrower than mesosoma (21:22). T1 with six longitudinal carinae. T2 striated in basal foveae to half of length, medially smooth. T3-T6 smooth with setae inserted in moderately deep punctures: 8 on T3, 12 on T4, 14 on T5 and 6 on T6 which is pointed.

♂. Body length 1.1 mm. Antenna with A3-A4 combined 1.15 times as long as A2; A4 moderately widened, fully twice as long and twice as wide as A3, but not wider than preapical segments; A7-A9 each as long as wide, flattened; most of flagellar pubescence almost 0.4 times as long as the largest width of segments. Metasoma 0.9 times as long as head and mesosoma combined.

Comments. This species runs to *P. ungeri* Buhl, 1999 in Buhl's (2006) key to Danish *Platygaster*, but *P. ashei* has e.g. stronger striated occiput and narrower female metasoma than *P. ungeri* (and it differs in the same way from the also somewhat similar *P. polita* Thomson, 1859), the sculpture on the back of head being very characteristic and the most important character for recognising *P. ashei*.

Etymology. Named after our esteemed colleague, Dr Patrick Ashe (Dublin).

Habitat. Slieve Coiltia (270m) is an isolated hill some 6km south of the town of New Ross, County Wexford, in south-east Ireland. The specimens were collected with a net near the summit of the hill. The area is wind-swept and the dominant vegetation consists of *Calluna*, *Pteridium*, *Rubus*, *Ulex* and various grasses. There are also a few stunted oaks (*Quercus*) and hawthorns (*Crataegus*). Further down the hill, there are extensive plantations of both exotic and native trees, forming part of the John F. Kennedy Arboretum.

***Telenomus fergussoni* sp. nov.**

Material examined. Holotype ♀: Ireland, Wexford, Curracloe (Irish grid reference T1128), 22.viii.2011, J.P. O'Connor (NMI).

Diagnosis. A small species of *Telenomus* s.str. with head hardly 1.5 times as wide as long and temples as long as eyes; female A4 slightly longer than each of A3 and A5; A9 much longer than A8, as long as wide; fore wing 4.1 times as long as wide with marginal cilia fully 0.6 width of wing, hind wing with marginal cilia one and a third times as long as width of wing; female metasoma hardly as long as rest of body, T1 with crenulation over most of surface, T2 1.25 times as long as wide, sculptured to half of length.

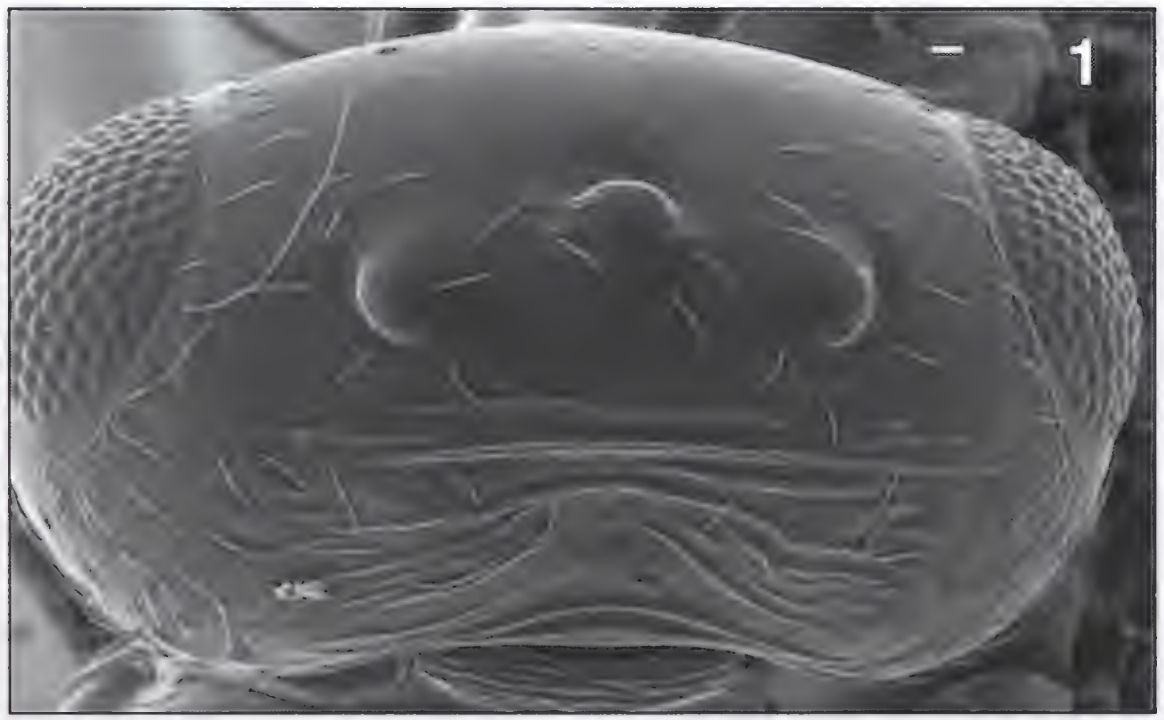
Description. ♀. Body length 0.7 mm. Black; antennae and tegulae dark brown, base and apex of A1 and entire A2 lighter; mandibles and legs medium brown; trochanters, tibiae and segments 1-4 of tarsi pale brownish.

Head from above (Plate 20) 1.45 times as wide as long, slightly more than 1.1 times as wide as mesosoma, smoothly rounded, finely transversely reticulate-coriaceous, frons almost entirely smooth; temples as long as eyes. OOL hardly as long as diameter of lateral ocellus, less than half as long as LOL. Eyes with a few short setae. Head in frontal view 1.1 times as wide as high. Antenna (Figs 5-6) with A1 0.75 times as long as height of head, as long as distance between inner orbits (this measured in lower half of frons); A1 as long as A2-A5 plus half of A6 combined; A2 as long as A3-A4 combined; A4 very slightly longer and wider than each of A3 and A5, about 1.2 times as long as wide; A6-A7 each about as long as wide; A8 longer than each of these, slightly transverse; A9 much longer than A8, as long as wide; A10 as wide as A9 but very slightly shorter; A11 fully 1.5 times as long as A10.

Mesosoma (Plates 20, 21) 1.4 times as long as wide, as high as wide. Sides of pronotum and metapleuron finely reticulate-coriaceous, mesopleuron smoother except in upper third. Mesoscutum evenly covered by rather dense punctures with setae, otherwise almost smooth, becoming faintly coriaceous towards margins, without notauli. Scutellum flat, almost semicircular, smooth except for a few seta-implantations anteriorly and along sides, in dorsal view 1.2 times as long as combined length of metanotum and propodeum which are uniformly dull, propodeum with a couple of widely separated very short crenulae at hind margin.

Fore wing (Plates 20, 21) 0.83 times as long as entire body, surpassing tip of metasoma to a distance equal to 1.75 times the combined length of T3-T6, 4.1 times as long as wide, clear, with fine and dense microtrichia; marginal cilia at their longest slightly more than 0.6 width of wing. Hind wing (Plate 21) 10 times as long as wide; marginal cilia 1.33 width of wing.

Metasoma (Plates 20, 21) shorter than head and mesosoma combined (19:21), 1.5 times as long as mesosoma, 0.9 times as wide as this. T1 about twice as wide as long, dull, covered by fine longitudinal crenulation. T2 1.25 times as long as wide, with uneven longitudinal striation over entire width at base, medially



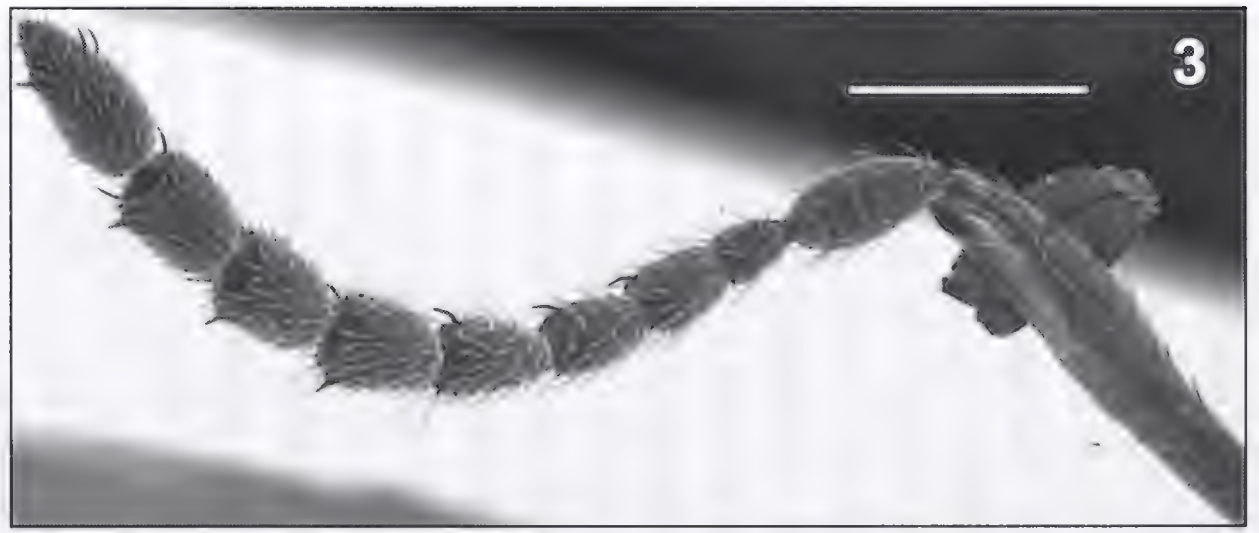


Plate 22. Fig. 1. Head of *Platygaster ashei* sp. nov. ♀ from above; Fig. 2. Body of *Platygaster ashei* sp. nov. ♀ in dorsal view; Fig. 3. Antenna of *Platygaster ashei* sp. nov. ♀; Fig. 4. Body of *Platygaster ashei* sp. nov. ♀ in lateral view. Scale bar = 100 μm except for fig. 1 for which it is 10 μm.

longest, here reaching about half the length of tergite. T3-T6 smooth, combined slightly less than half as long as T2 (somewhat telescoped), each with at most six setae, T6 pointed.

Comments. *Telenomus fergussoni* sp. nov. is similar to *T. heteropterus* Haliday, 1833, but this species has temples distinctly shorter than eyes, A1 shorter than A2-A5 combined, A8-A9 subequal, marginal cilia of fore wing only one-third the width of wing, of hind wing equal to width of wing, and T2 less elongate than in *T. fergussoni*, cf. Huggert (1983). *T. fergussoni* is somewhat similar to *T. moldovianus* Özdikmen, 2011 (*T. minimus* Kozlov, 1967 preocc.), but this species has more transverse head, shorter antennae, longer marginal cilia of wings and shorter striae on T2 than *T. fergussoni*. Also *T. strelzovi* Vasiliev, 1949 is somewhat similar to *T. fergussoni*, differing from this species e.g. in being larger (at least 1.0 mm), in having A3 longer than A4, marginal cilia of fore wings only one-third the width of wings, of hind wing hardly as long as width of wing, and shorter striation on T2, cf. Kozlov and Kononova (1983). *T. ciliatus* Buhl, 1998 (only male known) differs from *T. fergussoni* e.g. in shape of head (shorter temples), in having more depressed mesosoma, less elongate fore wings, weaker sculptured T1 and shorter striation on T2. *T. longiciliatus* Mineo, 2006 has fore wing even more elongate (5.1 times as long as wide) than in *T. fergussoni* and head distinctly more transverse than in this species. *T. pippo* Mineo, 2006 has fore wing about as elongate as in *T. fergussoni* but with a darkened band, and T1 almost smooth, T2 entirely smooth, cf. also Mineo (2006).

Etymology. Named after our esteemed colleague, Dr Nigel Donald McDade Fergusson (London).

Habitat. Curracloe is situated near the extreme south-east of Ireland, just north of the town of Wexford, and consists of an extensive coastal area of sand-dunes backed by marshes and lagoons. The locality has a rich flora. *Telenomus fergussoni* sp. nov. was swept with a net from the sand-dune vegetation near Ballinesker beach.

Acknowledgements

Thanks are due to Dave Cheung at the Zoological Museum, University of Copenhagen, for taking the light microscope photographs.

References

Buhl, P. N., 2006. Key to *Platygaster* (Hymenoptera, Platygastridae) from Denmark, with descriptions of new species. *Steenstrupia* **29**: 127-167.

Huggert, L., 1983. On *Telenomus*, mainly European; redescriptions, new taxa, synonymies and combinations (Hymenoptera, Proctotrupoidea: Scelionidae). *Entomologica Scandinavica* **14**: 145-167.

Kozlov, M.A. & Kononova, S.V., 1983. Теленомины фауны СССР [Telenominae of the fauna of the USSR. *Keys to fauna of the USSR* **136**: 1-336. Zoological Institute, Academy of Sciences. Leningrad, Nauka Publisher.] [In Russian]

Mineo, G., 2006. Descriptions of new species of *Telenomus* Haliday. *Scelionidae (Hymenoptera)* **1**: 67-71.

Dichrooscytus gustavi Josifov (Hem., Miridae) doing well in the Chiltern Hills

This small, red and green capsid bug, formerly known as *D. valesianus* (Meyer-Dur), lives on native juniper (*Juniperus communis* L., Cupressaceae) in the chalk downland of south-eastern England. Until 1951, there was only a single site known for this bug in Britain, at Goodwood, on the Sussex South Downs, but the insect was then found at Longdown Hill in the Buckinghamshire Chilterns (LeQuesne, 1951, *Ent. mon. Mag*, 87: 286). More records followed, for Riddlesdown, Kenley, in the Surrey North Downs (Groves, 1954, *Ent. mon. Mag*, 90: 21), Bald Hill in the Oxfordshire Chilterns (Woodroffe, 1960, *Ent. mon. Mag*, 96: 152) and Beacon Hill, near Kingsclere, North Hampshire, in the North Wessex Downs (Woodroffe, 1962, *Ent. mon. Mag*, 98: 163). Woodroffe (1962, *loc. cit.*) commented that this range expansion was in spite of the decline of its host plant.

Since then, three more sites on the North Wessex Downs have been reported, adding Berkshire to the know vice-county distribution (Ward & Lakhani, 1977, *J. appl. Ecol.*, 14: 121-135), and there have been some interesting sightings at horticultural sites, on other Cupressaceae. Massee (1959, EMM, 95:239) found it at the pinetum at Bedgebury, Kent; Whitehead (1989, *Ent. mon. Mag*, 125: 49-51) discovered a colony in a garden at Broadway, Worcestershire; and Jones (2000, *Entomologist's Rec. J. Var.*, 112: 133-134) found it in the car park of Chalfont & Latimer railway station, near Amersham, Buckinghamshire. Nau (2004, *Br. J. Ent. Nat. Hist.*, 17: 182-183) reported it as widely established on planted *J. chinensis* L. (Cupressaceae), but formerly scarce and declining on native juniper. Kirby (1992, *A review of the scarce and threatened Hemiptera of Great Britain. UK Nature Conservation No 2.* Joint Nature Conservation Committee, Peterborough.) also comments on the decline of its host plant and habitat, and categorises the species as Notable B. Given this background, I decided to see if I could find the bug on native juniper in my own patch on the Chiltern Hills.

My initial attempts to find the bug were a miserable failure but, on 2 July 2010, I struck lucky at Beacon Hill, Aston Rowant National Nature Reserve (grid reference SU727972). Here, on a single, mature juniper I found 11 individuals of the bug; although neighbouring bushes did not deliver any more examples. The following year, I was exploring elsewhere on the Chilterns at Grangelands, adjacent to Pulpit Hill (National Trust), where on 13 June 2011, I stumbled upon several mature junipers (SP829048), one of which yielded four individuals of the insect. This is very likely to have been the actual site visited by Dr LeQuesne 60 years earlier. Although, Longdown Hill is not marked on either of my 1:25000 or 1:50000 Ordnance Survey maps, an old guide to the Berkshire, Buckinghamshire and Oxfordshite Naturalists' (now Wildlife) Trust (BBOWT), dating from the 1970s, lists the Grangelands site and refers to the layby where I parked my car as "at the top of Longdown Hill".

Fired with this success, I dedicated the next few days to revisiting the other junipers I knew. The following day I visited Bald Hill, at the other end of the

Aston Rowant site, where down the north facing slope there were several junipers (SU722963). This may have been the very place reported by Woodroffe (1960, *loc. cit.*), as some of the bushes were large, mature examples; but it was a smaller, younger plant that gave me three more individuals of the bug. There are many other juniper bushes on the Aston Rowant reserve, but since I had recorded the bug at both ends, I decided that my job here was done. The next day, 15 June, I visited Swyncombe Down (SU672915), which contains a single, rather straggly juniper. Within a minute this bush gave me three *D. gustavi*, and I decided not to trouble it any further. This left two sites to visit, in my tour of known juniper bushes: Chinnor Hill, Oxfordshire (BBOWT) and Coombe Hill, Buckinghamshire (National Trust).

An hour standing in the rain on 16 June, among the many small junipers at Chinnor Hill (SP767005) delivered a single specimen, but the half dozen small bushes at Coombe Hill (SP847065), visited later the same day, delivered nothing. I revisited this site, under better conditions a few days later, but I still found no bugs. This was a great disappointment, as the warden of the site, Gerry Page, had given me a personal tour of the bushes the previous year, when I expressed interest in the plant. He had cleared the scrub from around them and was actively conserving this species at the site. It was a shame that I was unable to reward his kindness by recording this notable bug at Coombe Hill. I will keep trying.

It is clear from the foregoing, that *D. gustavi*'s fate in the Chiltern Hills is linked to the successful conservation of juniper. The relatively small number of sites still supporting juniper, has not led to the bug's extinction. Almost wherever I found juniper I also found the bug; even on a site with a solitary plant. My earlier failures to find this bug indicate that care must be taken when recording this species. Kirby (1992, *op. cit.*) refers to the bug's short season, and I have found that sometimes only one of a group of bushes will support good numbers of the bug. My initial failures to find the insect may be largely due to my searching too late in the year, in July and August; even though these are the months in which many old records have been made. The bug may be more common earlier in the season, as I found it in 2011. The plant itself is quite difficult to beat, and a tender approach (perhaps out of respect for the plant's scarcity), may not produce the insect, if present in small numbers.

Some excellent images of the bugs can be found on the British Bugs website (http://www.britishbugs.org.uk) or by searching Flickr (http://www.flickr.com). – ROB RYAN, 38 St John Street, Oxford, OX1 2LH (E-mail: notnowcato@ymail.com).

Moths new to the Isle of Wight in 2011

One macro-moth and eight micro-moths were recorded as new to the Isle of Wight in 2011. Details are as follows:

Hyphoraia testudinaria(Geoff.) Patton's Tiger: One at Totland on 5 May and another was found on a shop window by Joan Smith at Newport on 6 May. These appear to be the third and fourth British examples.

Caloptilia falconipennella (Hb.): Freshwater on 14 April, by Dave Cooke.

Syncopacma larseniella (Gozmany): Nansen Hill on 15 July, by David Biggs.

Monochroa lutulentella (Zell.): Cranmore on 31 May, by Tim Norris.

Argyresthia ivella (Haw.): Walters Copse, Newtown on 3 July by Dave Cooke.

Stathmopoda pedella (L.): Freshwater, on 11 July by Dave Cooke.

Pammene albuginana (Guen.): Freshwater, a field record on 21 June, by Dave Cooke.

Grapholita lobarzewskii (Nowicki): Five taken at Freshwater on 21 June by Dave Cooke.

Batrachedra praeangusta (Haw.): Bouldnor Copse on 23 July, by Martin Harvey.

I would like to thank John Langmaid and Mike Wall for assistance with the identification of these specimens. — Sam Knill-Jones, 1 Moorside, Moons Hill, Totland, Isle of Wight PO39 0HU.

A very early sighting of the Small Blue butterfly *Cupido minimus* (Fuess.) (Lep.: Lycaenidae) in 2012

The warm and sunny weather at the end of March 2012 caused some early emergences amongst our downland species of butterfly. Peter Hunt saw a couple of Small Blue on Afton Down on 30 March. This is, apparently, the earliest recorded date for this species in this country; the previous record, also from Afton Down, was made on 15 April 2007, so te present record beats this by 16 days.

Avery early Grizzled Skipper *Pyrgus malvae* (L.) was seen at the same locality, but the record-breaking example was seen in Sussex two days earlier.

The first Green Hairstreak *Callophrys rubi* (L.) for the Isle of Wight was seen by me on Afton Down on 2 April 2012. — Sam Knill-Jones, 1 Moorside, Moons Hill, Totland, Isle of Wight PO39 0HU.

An Irish male of *Craspedolepta nebulosa* (Zetterstedt) (Hem.: Psyllidae)

The psyllid *Craspedolepta nebulosa* (Zetterstedt) was discovered in Cos Cavan and Waterford in 1999 and 2000 (O'Connor, J. P., 2001. *Entomologist's Rec. J. Var.* **113**: 189-190). These records were based on nymphs present in galls on the leaves of rosebay willowherb (*Chamerion angustifolium*). No adults were found. Until now, these were the only Irish records of *C. nebulosa* (O'Connor, J. P. & Malumphy, C., 2011. *Bulletin of the Irish Biogeographical Society* **35**: 21-63).

On 21 May 2012, while visiting Slieve Coiltia, Co. Wexford (S7319) near the John F. Kennedy Park in south-east Ireland, a male of *C. nebulosa* was swept from a stand of newly emergent rosebay willowherb. The plants were growing half way up the hill in mixed vegetation. The specimen was identified using Hodkinson & White (1979, *Handbooks for the Identification of British Insects* **7**(5a)) and Ossianilsson (1992, *Entomologica Scandinavica* **26**) and confirms the nymphal determinations. At present, fifty species of Psylloidea are known from Ireland (O'Connor & Malumphy, *op. cit.*). The adult of *C. nebulosa* will be presented to the National Museum of Ireland. — JAMES P. O'CONNOR, Emeritus Entomologist, National Museum of Ireland, Kildare Street, Dublin 2, Ireland.

***Stephanitis takeyai* Drake & Maa (Hem., Tingidae) new to Oxfordshire**

On 15 June 2011, I was collecting my younger son, Ben, from St Barnabas School, Jericho, Oxford. I normally leave about half an hour to an hour after school ends for him to play with his friends, before commencing the journey home, and occupying my usual haunt, sitting on a low wall at the north-eastern end of the playground (grid reference SP506070), I happened to glance down at my feet and noticed a small, white and black patterned insect on my right shoe. I immediately recognised this as the lacebug *Stephanitis takeyai*, which I had only ever encountered twice before, and promptly attempted to take it as a specimen. Without any collecting equipment, I was reduced to the vulgarity of squashing it against the leather, an assault to which the bug proved remarkably resistant. Nevertheless, I managed to get the insect into my handkerchief, and thence into my coat pocket. On arrival home, I placed the bundle into the freezer, to properly dispatch the animal, and microscopic examination later confirmed its identity. I reported my find to the county recorder John Campbell, who confirmed the species as new to the Oxfordshire list.

This lacebug is a pest of the ornamental shrub *Pieris japonica* (Thunb.) D. Don (Ericaceae), and was first introduced to the UK over a decade ago, on infested plants from continental Europe. It is now established in this country, and the DEFRA Plant Health and Seeds Inspectorate report finding it at many horticultural sites, although there are as yet very few published records from Hemipterists. A few days later, I attempted to find the precise site from which my specimen had come, and hoped to see some more of the insect. However, a search of the precinct do not reveal any

infested bushes. My previous encounters with the bug, at Box Hill in Surrey (Ryan, 2012, *Entomologist's Rec. J. Var.*, 124: 24), were a long way from any horticultural area, so there is no good reason to suppose that the latest capture originated from a plant in the immediate vicinity of the school or, for that matter, from Oxford.

This is not the first time St Barnabas School has been the subject of a new county record. In 2009, I found *Dicyphus escalerae* Lindberg (Hem., Miridae) on the way to the school's annual fete (Ryan, 2012, *Entomologist's Rec. J. Var.*, 124: 58), and for several years I have been examining the plane trees (*Platanus* sp., Platanaceae) that line the school's boundary, hoping to find two recent additions to the British list, *Arocatus longiceps* Stal (Hem., Lygaeidae) and *Corythucha ciliata* (Say) (Hem., Tingidae), so far without success.

Some excellent images of *S. takeyai* may be found on the British Bugs website (http://www.britishbugs.org.uk) or by searching Flickr (http://www.flickr.com). – ROB RYAN, 38 St John Street, Oxford, OX1 2LH (E-mail: notnowcato@ymail.com).

CALL FOR NOTES ON THE 2012 SEASON

There can be no doubt that 2012, at least to mid-July as I write this text, has been excessively poor for entomological field work. In my own experience and that of many correspondents, almost all species of British moth have been represented at moth traps by hugely reduced numbers – in some cases a reduction in numerical abundance in the order of 90%. Additionally, several expected species may not have appeared at all to date. The situation is evidently repeated across other invertebrate taxa, with hoverflies (Diptera, Syrphidae) in particular very hard to find, even in my Malaise traps.

It is widely accepted that the fundamental reason for this situation is the unexpected southwards shift during the year of the high altitude air current known as the "jet stream". This flows, under normal circumstances, from the northern American continent across the Atlantic Ocean and thence north of the British Isles, but during 2012 is has displaced significantly in the east and is currently flowing across central and southern France. As a direct consequence of this, low pressure weather systems have been allowed to develop on the northern edge of the jet stream and track across Britain bringing the exceptionally high rainfall and accompanying cold/windy that is by now well-documented.

In the spirit of the title of this journal, the Editor positively invites the submission of short Notes that place this situation on record. These Notes should provide the reader with factual information rather than supposition and will ideally contain rather more than the single observations that might be better passed to the relevant County Moth Recorder for collation into a larger article. It is likely that I will publish these Notes in the January 2013 issue of the journal; submissions will ideally be made during November and December 2012. — EDITOR.

New host record for *Paraperithous gnathaulax* (Thomson, 1877) (Hym.: Ichneumonidae) of *Pyrochroa coccinea* (Linnaeus, 1761) (Col.: Pyrochroidae)

The cardinal beetle *Pyrochroa coccinea* (L.) is one of only three species of Pyrochroidae found in Britain. It is locally distributed throughout the southern half of England with very few records north of the Tees, and it currently holds a Nationally Notable B status (Hyman & Parsons, 1992. *A review of the scarce and threatened Coleoptera of Great Britain Part 1.* UK Nature Conservation, number **3**. JNCC). The flattened larvae of this species are light yellow in colour and have a pair of backwardly-directed prongs on the end of the abdomen. The larval stage may last for as long as three years, during which the larvae develop under the bark of rotten oaks *Quercus* spp. and feed on the mycelium of fungi and the larvae of other beetles. The adults on the other hand are large (<>20mm), conspicuous beetles with bright red thorax and elytra. The black head distinguishes it from a similar species *P. serraticornis* (Scopoli, 1763) and its large size from *Schizotus pectinicornis* (L., 1758). The adults are, however, rarely seen due to their short lifespan.

On 11 March 2012 three fully-grown pyrochroid larvae were collected from a rotten oak trunk of large diameter, within a foot (40 cms) of each other, at Richmond Park National Nature Reserve. They were kept together in a container with substrate collected from the site in hope that the adults would soon emerge. A week later the larvae were observed to have pupated, but body fluids were flowing from one of them and it was presumed dead. On 26 March 2012, the first adult emerged and the identity of the larvae was confirmed as *Pyrochroa coccinea*. Three days later however, a large female ichneumonid wasp emerged inside the container and was later identified as *Paraperithous gnathaulax* (Thomson, 1877) by Dr Gavin Broad of the Natural History Museum, London. Therefore it is possible to infer that the pupa which died had been pasisitised by the ichneumonid wasp. This is a new host record for this uncommon wasp, which has only been recorded on a handful of occasions from southern England. According to Dr Broad, previously *Paraperithous gnathaulax* had been reared once from *Galleria* (Lep.: Pyralidae) larva [presumably *mellonella* L. as this is the only British species?] taken from a bee's nest and on another occasion from *Morophaga* (Lep.: Tineidae) larva inside a sample of *Piptoporus* bracket fungus. In Turkey this species has been recorded as a parasitoid of *Saperda populnea* (L., 1758) (Col.: Cerambycidae) and reared from the galls of the beetle (Özbek, H., Tozlu, G. & Coruh, S., 2009. Parasitoids of the small poplar longhorn beetle, *Saperda populnea* (L.) (Coleoptera: Cerambycidae), in the Aras Valley (Kars and Erzurum provinces), Turkey. *Turkish Journal of Zoology 2009:* Vol. 33, No. 1, pp. 111-113).

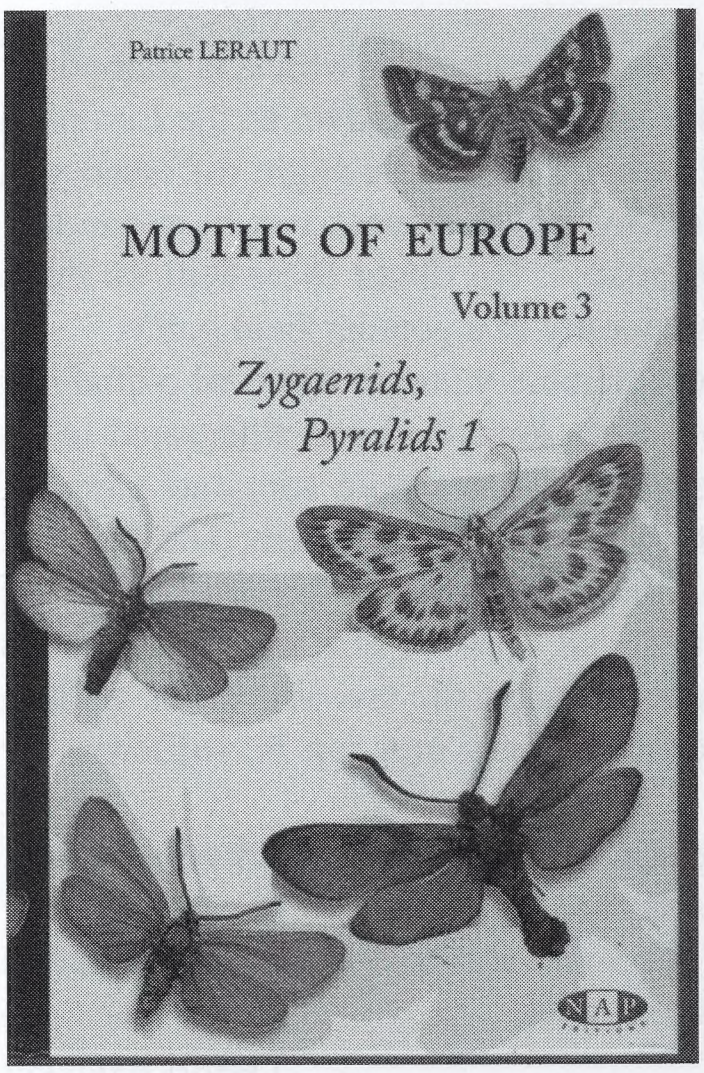
The specimen of *Paraperithous gnathaulax* reared from the *Pyrochroa* larva has now been donated to the Natural History Museum, London.

I would like to thank Mr. Florin Feneru of the Angela Marmont Centre for his help during the procedure of the identification and bringing this to the attention of

the experts and Dr Gavin Broad for his identification of the wasp. Finally many thanks to Mr. Max Barclay, who encouraged me to publish this record and helped me by making amendments to the Note. — YIKAI ZHANG, Westminster School, Little Dean's Yard, London SW1P 3PF.

BOOK REVIEW

Moths of Europe, Volume 3: Zygaenids, Pyralids 1 by **Patrice Leraut.** 600pp.; 110 pages of colour plates. 200 x 130 mm., hardbound. ISBN 978 2 913688 15 5 for the English language version and 978 2 913688 14 8 for the French version. NAP Editions, 2012. €86 plus postage and packing. Available from the publisher at 3 chemin des hauts graviers, 91370 Verrieres le Buisson, France and most entomological booksellers.



After two volumes on macrolepidoptera this one covers the Zygaenidae, Brachodidae and Pyralids 1. The Crambidae in the modern sense equates to Pyralids 1, i.e. the subfamilies Pyraustinae, Spilomelinae, Odontiinae, Evergestinae, Graphyrinae, Crambinae, Schoenobiinae, Cybalomiinae, Scopariinae and Acentropinae. It is in hardback of a size to be worthy of the name "handbook". The work was simultaneously published in both French and English versions.

The author packs a colossal amount of work into this volume. Over 1000 species are described and illustrated in 112 colour plates with 2300 photographs, most with a distribution map and many with line drawings of genitalia.

It is unusual for taxonomic research to be included in a popular field guide, but the book includes the description of a new genus, seven new species and eight new subspecies. So that these will not be missed by the Zoological Record these are helpfully listed at the beginning.

The brief introductory chapter contains an assortment of items such as morphology, ecotypes, collection, preservation techniques, classification and conservation. The species accounts describe most, but not all, of the species found in Europe. Other parts of the Western Palaearctic region, such as North Africa and the Middle East are often included and a few, usually well known species, from further afield such as Asia. Presumably the choice of species was influenced by those available to the author in the Museum National d'Histoire Naturelle in Paris.

Each species description uses the scientific name with author and date, in agreement with Fauna Europaea, with only a few recently used synonyms. A vernacular name in English and French is provided for the Brachodidae and Zygaenidae, but mercifully only a French one for the Crambidae. Sometimes the account begins with a Comment; then there is a concise description of the adult, both sexes where dimorphic; variation; closely related species; biology; flight-time of the adult; distribution and status. Where new taxa are described the sequence is altered and includes a listing of type material. In most cases there is a distribution map featuring most of Western Europe and the coast of North Africa west of Sicily. In cases where it is deemed desirable there are structural drawings, usually of male and female genitalia, with lines pointing to points of difference. Comments at times are added at the end. There is a large section of colour plates in the middle of the book. These are made up of life size photographs of set specimens. In each case a computer generated shadow appears to the right and below the specimen. Several examples are included for variable species. Alongside the photographs there is often a comment describing the status or distribution of the species, such as "highly local", "endemic to Italy", "Central Asia", "quite common" and so on.

The index contains the name of each species and genus giving the number of both page for the description and plate for the illustration. There is no index of vernacular names. The book concludes with a short bibliography citing important works on the families treated, then there is a page entitled "Contacts" which gives the addresses of some French, British, German, Italian and Europe-wide websites.

Among the new species is a sister species of *Ostrinia nubilalis* which is named *O. maysalis* sp. n. The latter feeds on maize whereas the former, often known as the European Corn Borer feeds on Mugwort and related plants. There are said to be slight differences in the appearance, but no discernible structural features by which species can be separated; however the DNA apparently show significant differences. No doubt there will be more published on this complex, but this information rests uneasily in a popular field guide.

As a field guide this book will no doubt be of considerable value to those who study or collect in Europe, several groups have never before been described and illustrated in an easily accessible publication. For all its idiosyncrasies this book should stimulate study of some less known groups and be a stimulus to greater understanding of them. The fact that the photographs are life size will often be helpful, although the detail of the wing pattern of smaller species is not helped by the addition of an artificial shadow. The target audience is that of amateur field workers, although it will be of use to systematic taxonomists as well; in some cases the distinguishing features of closely related species may not be sufficient for accurate determination.

Despite these reservations one has to admire the effort that has packed so much information into a small volume, it will become a constant companion to those who carry out their fieldwork in Europe and adjacent areas to the south and east. Further information can be found on the publisher's website www.napeditions.com

David Agassiz

Request

Book Reviews

THE ENTOMOLOGIST'S RECORD
AND JOURNAL OF VARIATION

http://www.entrecord.com

ISSN 0013-8916

Papers

Notes

Continued on inside back cover

Printed in England by
Cravitz Printing Company Limited, 1 Tower Hill, Brentwood, Essex CM14 4TA. Tel: 01277 224610